$ 12.00

MICHIGAN MANUFACTURER AND FINANCIAL RECORD

FOURTEENTH ANNUAL

DETROIT AUTOMOBILE SHOW

January 16-23, 1915

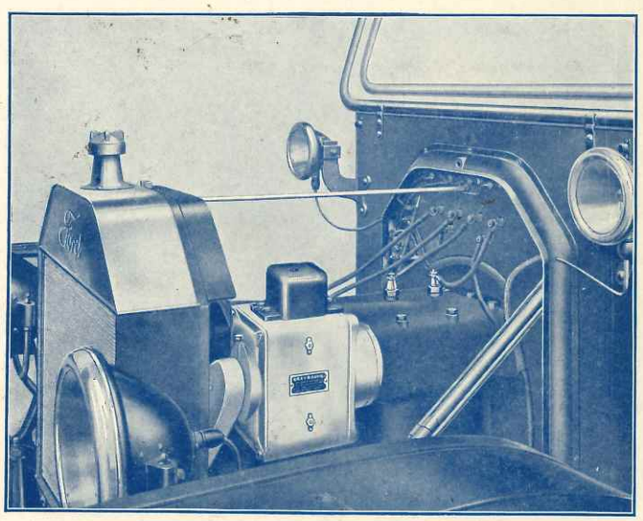
Good News For

FORD OWNERS

No more Cranking. You can now start
and light your FORD with

GRAY & DAVIS Starting Lighting SYSTEM

Price Complete $75.00 (f.o.b. Detroit)



Immediate delivery. Sold and installed by

FRED E. HOLMES CO.

1598 Woodward Ave. Michigan Distributors 23 Harper Ave.

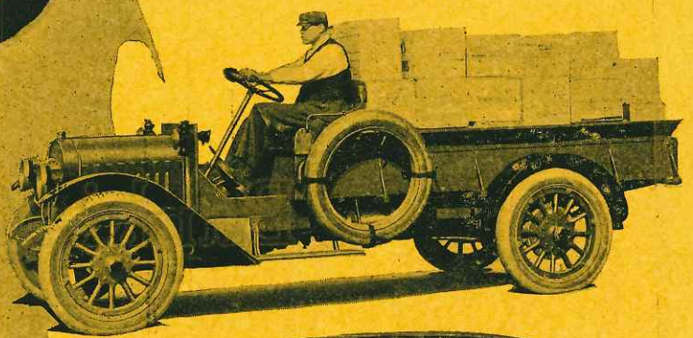
DETROIT, - MICH.

This is the lightest of our eight electric models. Capacity, 1000 lbs. Chassis price, without battery,

$1200

This is the lightest of our eight gasoline models. Capacity 1500 lbs. Chassis price,

$1090



DOESN'T it seem reasonable to believe that the largest company in the world building both gasoline and electric trucks might be able to help you straighten out your delivery and haulage problems? If it does strike you that way—write us today.

GMC
GENERAL MOTORS COMPANY
TRUCKS

Gasoline **Electric**

Experienced operators of power vehicles know that motor trucks pay big returns on the investment only when they fit the service in which they are used.

YOUR natural question is "what trucks will best fit MY business?" This all depends on the length and tonnage of your hauls, the nature of your roads and the character of your work.

Generally speaking, in congested traffic and frequent stop work electric trucks excel, while gasoline trucks make the best showing when the hauls are long and the stops relatively few. The individual conditions surrounding YOUR work, however, may modify this general rule.

In answering your important question "what trucks are best for me?" doesn't it seem reasonable to believe that the largest company in the world building both gasoline and electric trucks might be of some assistance?

As the largest manufacturers of gasoline trucks from 1500 lbs. to 5 tons capacity, and electric trucks from 1000 lbs. to 6 tons, we have no prejudice in favor of any particular truck. We can afford to be unbiased in our advice, even to the point of recommending that you keep your horses, should that course seem best in the light of all the facts.

It will cost you nothing to get the honest judgment of our practical transportation men as to the motor truck equipment that will serve you best. Outline what you would like to accomplish and we will have a representative advise with you personally, or write you fully as you prefer.

DEALERS: Before you decide what motor truck you will handle send for our book, "Introducing the New Member."

GENERAL MOTORS TRUCK COMPANY

Direct Factory Branches: Detroit, Chicago.

One of the Units of the General Motors Company
PONTIAC MICHIGAN

Detroit Office: Lafayette Blvd. and 12th St. J. C. Ayers, Mgr.

Banking Facilities

THE BANK which is equipped in the highest degree in every department of banking will give you the best banking service. Facilities are the result of growth and development only.

This bank can best handle its customers' checks and collections because it stands first in the extent and breadth of its outside banking connections. Its Foreign Exchange Department offers the best service because the bank carries its own accounts in the financial centers of Europe—London, Paris, Berlin, Petrograd and Rotterdam.

Our Safe Deposit Vaults are a growing convenience to the general public. We invite the accounts of corporations, firms and individuals.

FIRST AND OLD DETROIT NATIONAL BANK

MEMBER FEDERAL RESERVE BANK

Let's talk sense about motor car economy

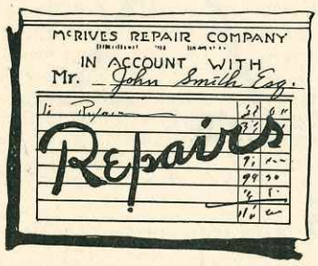
There has been a lot said about *what is* and *what is not* motor car economy. You may have been told that it is economy to buy a cheap car. But you can clearly see that the first price is not the *real* cost of any automobile. A cheap car—like most other cheap things—is pretty expensive in the long run. After all its really the *monthly price* you pay—the upkeep cost for service—that tells whether your car is economical or not. Now upkeep cost depends upon three things—gasoline cost, oil cost and repair cost. Let's face these facts frankly and figure out in which of these three there is a chance for the *greatest* economy.

The Big Saving Isn't in Gasoline

There are other "Light Sixes" as sparing of gasoline as this Chalmers. We admit this frankly. But then—the most you can possibly save in gasoline wouldn't amount to much. There is less than $25 difference in a season's gasoline cost between any two "Light Sixes" on the market.

The Big Saving Isn't in Oil

Nor is the Chalmers $1650 "Six" more saving in oil than many other "Light Sixes." But oil is the cheapest thing you buy for your car. A season's cost of oil for any car is really a minor expense.



But Here's Where There's *Real* Saving

It's your repair bill that determines the *real cost* of your car. For one repair bill will wipe out a season's saving in oil and gasoline. So the car that has the lowest repair expense—the $1650 "Chalmers Six"—is the *cheapest* car to own. Its service costs you least. And your satisfaction and comfort are consequently greater.

The Chalmers Six "Stays Put" —that's Why it is so Economical

Four big features of this car enable it to stand the hardest service without noticeable effect.

These are—right construction, right weight (undue weight is bad—under-weight is worse), proper balance and scientific distribution of weight, and best quality materials

At the point of service where some "Light Sixes" begin to rack and jar and develop need for repairs, the Chalmers "Light Six" is running smoothly, "sweetly" and powerfully.

At the time other cars begin to pile up repair bills this car goes on its way holding expense down to the lowest notch. A month by month comparison with other "Light Sixes" during the past season will prove every statement made about the car's remarkable economy.

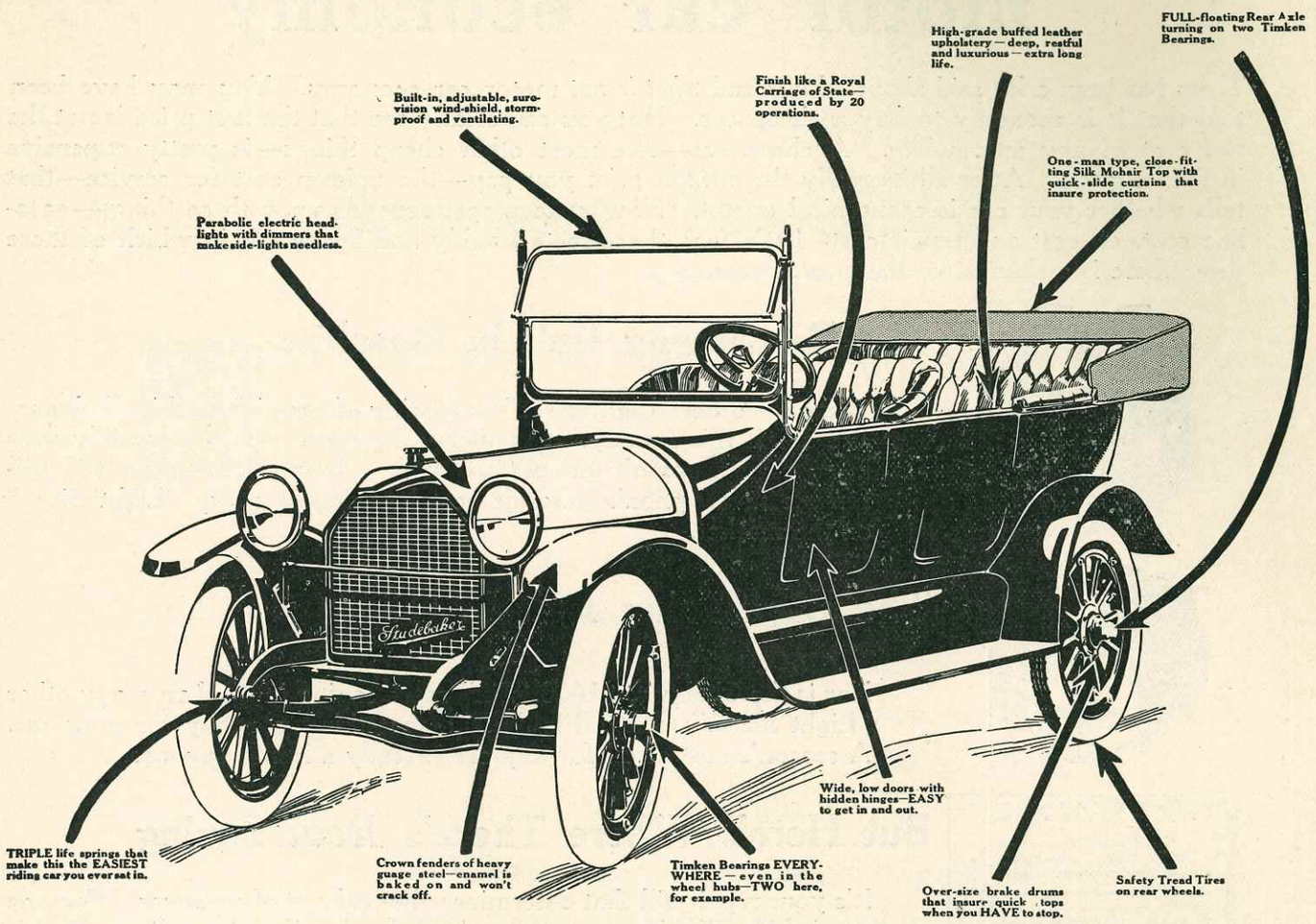
Make a note on YOUR memo pad to see the Chalmers "Light Six" today.

CHALMERS MOTOR CO. Detroit, Mich. U.S.A.

Quality First

Chalmers Motor Company, Detroit

Before you decide on any car —look for the "SIX" that has


FULL-floating Rear Axle turning on two Timken Bearings.
High-grade buffed leather upholstery—deep, restful and luxurious—extra long life.
Finish like a Royal Carriage of State—produced by 20 operations.
Built-in, adjustable, sure-vision wind-shield, storm-proof and ventilating.
One-man type, close-fitting Silk Mohair Top with quick-slide curtains that insure protection.
Parabolic electric head-lights with dimmers that make side-lights needless.
Studebaker
Wide, low doors with hidden hinges—EASY to get in and out.
TRIPLE life springs that make this the EASIEST riding car you ever sat in.
Crown fenders of heavy guage steel—enamel is baked on and won't crack off.
Timken Bearings EVERY-WHERE—even in the wheel hubs—TWO here, for example.
Over-size brake drums that insure quick stops when you HAVE to stop.
Safety Tread Tires on rear wheels.

—all at a price of $1385

It's the famous Studebaker LIGHT SIX. And it's the one car that you want to see, if you don't see any other.

For this is the SIX that's always a year ahead in price. 'Way last Summer this Studebaker SIX was selling at $1385 when every other SIX was hundreds of dollars higher in price. With that difference in price, this SIX was indisputably supreme in the field of Light Sixes. But even as the other Sixes begin to drop down to the Studebaker price, it maintains its supremacy.

But judge for yourself—get the FACTS on all the Sixes in its class—stand them side by side and see what each offers at the price. Studebaker will welcome any comparisons—for the simple reason that Studebaker has spared no expense, no effort to make this SIX as GOOD as a car CAN possibly be.

Studebaker **ROADSTER**	$ 985
Studebaker **FOUR**	985
Studebaker **LIGHT SIX**	1,385
Studebaker **SIX** (7-passenger)	1,450

F. O. B. Detroit.

Studebaker Features

Electric Lighting and Starting—FULL Floating Rear Axle—Timken Bearings—Safety Tread Rear Tires—One-Man Type Top.

On View at the Studebaker Showrooms Everywhere.

STUDEBAKER-DETROIT

MICHIGAN MANUFACTURER AND FINANCIAL RECORD

VOL. 15 NO. 3 DETROIT, JAN. 16, 1915 PRICE TEN CENTS

The 1915 Motor Car Show of the D. A. D. A.

The Detroit Automobile Dealers' Association welcomes all the world to its Fourteenth Annual Automobile Show, the doors of which open today under auspices most favorable. They will remain open day and evening for the instruction of those who are interested and for the entertainment of the general public, until midnight of Jan. 23.

On every hand it is generously granted that this show excels in every old feature, and many new ones, all former shows of its kind ever opened in Detroit. There are some new and unique features about this show to see which many are coming from all over the continent. Those who have traveled long distances to spy out the latest style of D. A. D. A. show are principally manufacturers, dealers and salesmen of automobiles, including all classes of vehicles propelled by gasoline or electricity, also manufacturers and dealers in accessories.

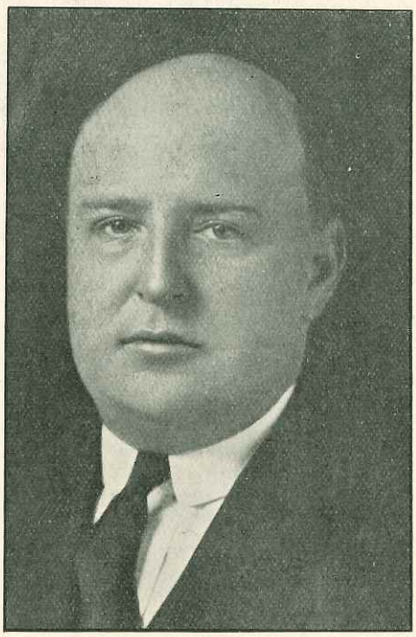
WILL KEEP THE SHOWMEN BUSY.

The buying public has plenty of advance information as to the main features of the show and those who are intending to purchase new cars, those who are about to buy their first car, and those who are desirous to learn things about other cars that may be of benefit to them in the care and handling of their own car, have indicated with the opening of the show that they are going to keep the demonstrators and salesmen very busy until the last minute of the last day in the evening.

The dealers, on their part, were never better equipped to receive and entertain their guests than at this 1915 show. The demonstrators and salesmen have at their disposal the most complete line of modern products of the automobile manufacturers possible to produce. It would seem that the limit of perfection in utility, comfort and beauty possible to conceive had been reached in the production of motor vehicles as displayed in this show. There is a very noticeable improvement in many of the best features of last year's cars, and there are quite a number of radically new features in the cars exhibited this year.

THE EIGHT CYLINDER'S FIRST APPEARANCE

If the eight-cylinder motor car was dreamed of a year ago the general public did not get an inkling of the manufacturer's secret. Yet this 1915 show discloses the eight-cylinder in its completeness, a thing of perfection in the creation of high power and noiseless speed. The light six has attained the acme of perfection as seen at the show this year. The cyclecars are for the most part new as to form and features, as shown this year. There are so many new features in the accessory line, most of which are being exhibited in this show, that one can spend several hours in that department most profitably inspecting inventions of the past year which are intended to induce more satisfaction and efficiency in automobiles after they have reached the purchaser and owner.



C. C. STARKWEATHER,
President D. A. D. A.

IMPROVEMENTS IN EVERY PART.

The improvements of the past year cover every part of the automobile. The bodies show this at a glance, for the streamline predominates, producing graceful lines and cutting down the resistance of the air and thus producing a saving in power for general purpose driving and insures greater speed in road burning expeditions. In the mechanism of most of the cars are refinements which have much to do with the perfect working of the engine, transmission, ignition, lighting and starting, things which are plain when shown, but are hidden from the casual eye.

The improvement in looks applies to every known model of car. There is one which has not followed the streamline in its touring and runabout models, but even it uses a graceful curve in one of the inclosed types. The highest priced cars generally are in the lead in the matter of points which catch the eye, but this year the medium and popular priced jobs show just as much change, all of them being strong on appearance.

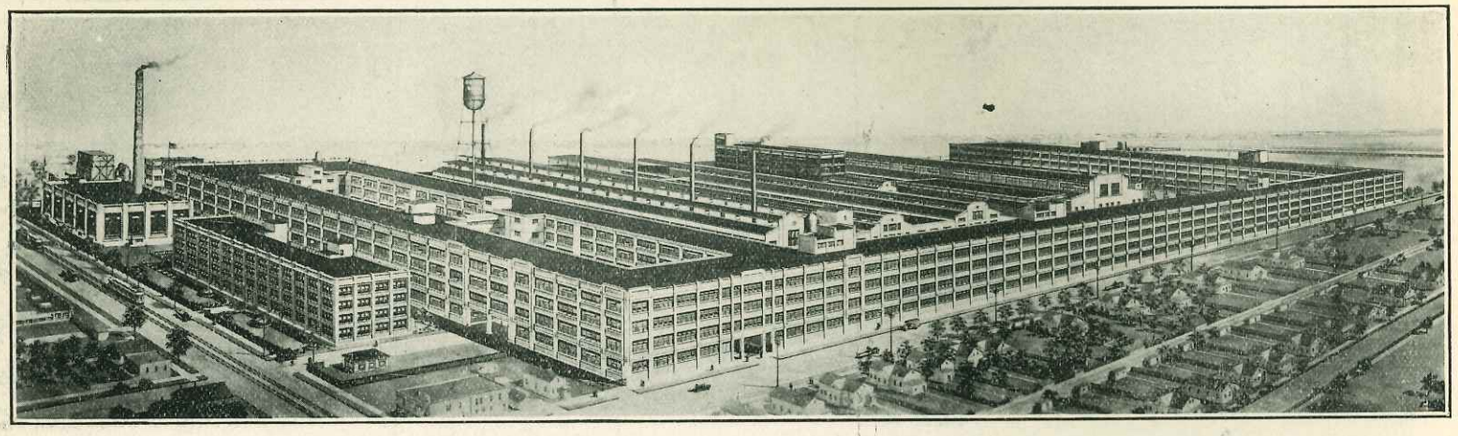
There is a wider range in prices this year than ever before. There are runabouts which sell for less than $300, and it is the first time this figure has been met by any but the cyclecars. There are inclosed jobs which market for $7,500, and between the minimum and the maximum an almost endless variety of cars to suit the individual bank account.

VARIED PRICE RANGES.

In the range of prices between $450 and $1,000 there are some very tasty and comfortable runabouts and touring cars of the four and five-passenger variety in the four-cylinder type; also some of the new sixes, which are proving more or less of a sensation. In the $1,000 to $1,300 class there are some high fours, far better in every way than those which have gone before at the same figure. The next step, from $1 300 to $1,700, takes in the light sixes which have forged to the front and are very popular among the people who can afford them. There are other sixes selling for a little over $2,000, and a number around the $2,500 point; also established lines which are bringing $3,000. After that comes the big cars, $4,000 and up, with power, speed and luxury—all that goes with the best product of the American automobile factory.

DETROIT SHOW DISTINCTIVE.

The 1915 Detroit automobile show stands out distinctive from all other auto shows either in Detroit or any other part of the country because, for the first time in the history of auto shows and automobile making there are being shown not only the various makes and types of cars, both pleasure and commercial, but every auxiliary feature that enters into the



PLANT OF DODGE BROTHERS, DETROIT.

finished car, from spark plugs to tops and bodies, is being shown in the several departments. Never before has the public had the opportunity to view in one show, and practically under one roof, the vast and astonishing development attained by the automobile industry. There is not a bewildering confusion of cars on display, but the pick and cream of the market that mechanical ingenuity and business brains can perfect and sell.

FINE HOME FOR THE SHOW.

While all Detroit deplores the lack of an exposition building in keeping with the population and commercial standing of the city, that deficiency is not so keenly felt by the automobile people this year since the Detroit Lumber Company's new buildings have lent themselves so generously to the exposition scheme and provide ample room and facilities for the 1915 show. The location, on West Jefferson avenue, between Junction and Campbell avenues, has proven very convenient and easy of access for automobiles and street car riders coming from any part of the city and country. Those who come in their automobiles find room to park their cars under the roof if they so desire. Those who come by the Delray, Trenton or Wyandotte, out Fort and West Jefferson, get off in front of the main entrance to the automobile exposition. Those who take the Fort street line have but a few blocks down either Junction or Campbell avenues to walk to the big show.

MONSTER ARMORED CAR.

The first feature that greets those who attend the show in the evening is the monster armored motor car mounted over the main entrance. The immense reproduction of one of the destructive vehicles of the European war is mechanically operated and lighted by electricity. At night the wheels revolve rapidly as if the huge mankiller were going into battle, the muzzles of the big rapid-fire guns spouting rockets and bombs which burst in the air and illumine the surrounding district. The armored car is 35 feet in length and is proportioned accordingly.

Upon entering the main lobby the grouping of large statues at the entrance and about the room give an impressive and inspiring welcome to the visitors. These figures typify the various phases of the automobile industry. There is a touch of sublimity in their grandeur and they hint at the dignity and luxuriousness of the exhibits inside. This lobby is flanked by the ticket booths, offices of the show manager and the executives of the Detroit Automobile Dealers' Association, the check rooms and information bureau.

THE COMMERCIAL VEHICLE SHOW.

The lobby communicates directly with the commercial vehicle building, the decorative scheme of which is arboreal in character. Here are shown practically all the makes of motor trucks, both gasoline and electric, under most advantageous auspices. Never before have commercial trucks been permitted to exhibit on an equal plane with pleasure cars. In this show the visitors are impressed with the fact

HENRY FORD, PRESIDENT
Ford Motor Company.

that the commerce industry of this age is motorized most proficiently. There are little trucks, big trucks, and trucks for handling and conveying everything from light packages to many tons of structural steel and coal.

The passage from the truck building to the main building, on the lower floor of which the automobiles are displayed, is made through a wonderful creation of the decorator's art. It represents a cavern, or natural tunnel, whose vaulted ceiling and rocky floor are studded with stalactites and stalagmites, the indirect lighting system carrying out the grotto effect.

SURPRISE IN MAIN AUDITORIUM.

A wonderful surprise awaits in the main show auditorium. The decorative scheme here carries out an immense Japanese garden in which the handsome cars on display appropriately merge into the general effect without a single jarring note in the color tone or scenic arrangement. The Japanese columns and pergolas supporting the semi-indirect lighting arrangements, the paneled walls and tea arbors are rich in the brilliant hues of the orient, the tones subdued and blended to dignified richness by the touch of the master artist. Cold words really cannot do justice to a description of this or the other portions of the show and the first visitors are simply telling their friends to be sure and attend, and are arranging to return themselves.

NOVEL SECOND FLOOR FEATURE.

If the first floor of the main building produces a sensation, on the second floor, much of which is occupied by the accessories and kindred exhibits, the visitor is doubly gratified to find here a novel feature that is entirely original with the D. A. D. A. 1915 show. This feature is creating more widespread interest than anything offered by the other shows this season. The scheme of decoration in the accessory hall is panoramic and the visitor is transported across the entire continent, from ocean to ocean, along the great Lincoln Highway, as that national thoroughfare will appear when completed. The effect is produced by 40 large panels surrounding the entire room, each panel depicting an actual scene along the route, sketched and reproduced by clever scenic artists. The scenes were selected for their distinctiveness and many who are attending this show will very probably identify the places when they make trans-continental trips in the future.

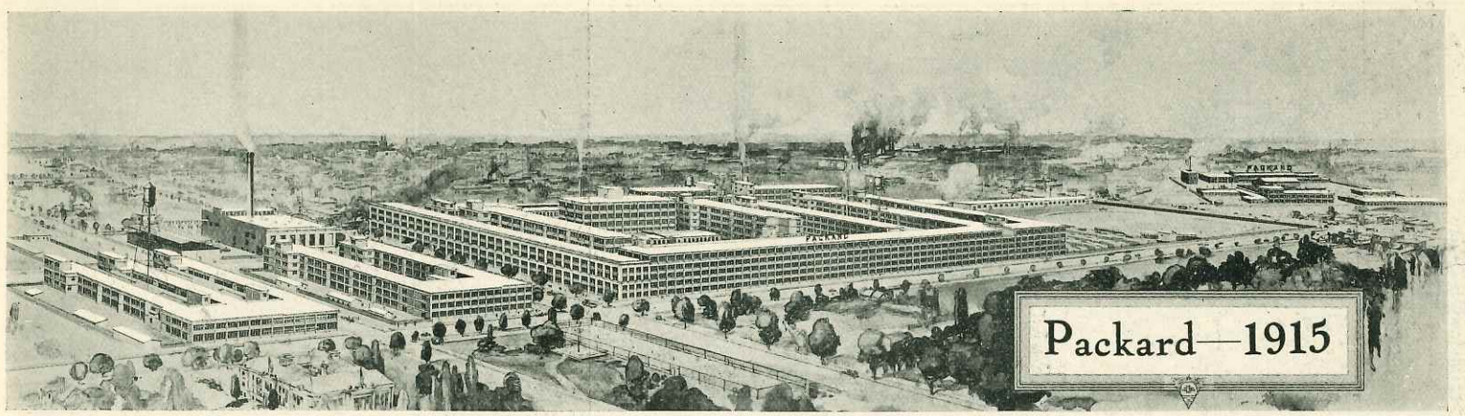
The third floor of the main building of the auto show is given over to entertainment, amusements and refreshments. The cabaret and dancing in the evening proves a most refreshing variation from former shows, and the novelty of the surroundings gives an air of charm and allurement that is adding much to the success of the 1915 D. A. D. A. auto show.

Michigan Still Leads in Motor Car Industry

By Alfred Reeves, Manager Automobile Chamber of Commerce

Skilled designing with efficient engineering scientific manufacturing has made America the leader of the world in motor car building is the opinion I formed after a western trip which completed travel during the last seven months that carried me to the factories of all the ninety-three companies holding membership in the National Automobile Chamber of Commerce. My round of the plants included forty-two cities in eleven different states, from Massachusetts and Virginia in the east to Wisconsin and Missouri in the west.

My report to the association shows that since 1900 the industry has not taken a backward step, not even during the business depression of 1907, while each year has seen substantial gains in the number of cars made and sold, with the figures for the last twelve months of



PLANT OF THE PACKARD MOTOR CAR COMPANY, DETROIT.

more than 515,000 cars valued wholesale at more than $485,000,000, exceeding the motor car production of the balance of the world by a wide margin.

Offerings at the fifteenth annual automobile show next month will astonish everyone because of the extraordinary values that will be offered. Keen competition has brought the price of cars down to the lowest possible point, with attractions in the line of accessories and body equipment that were unheard of a few years ago. Trade throughout the country has been excellent considering conditions, and the makers as a class are in good shape. They have lost the export trade in passenger cars to a large degree, but of course truck figures have increased as a result of the war on the other side.

To be sure there are some concerns who have not succeeded and others who have made great successes. The business is a trying one and only under most favorable conditions and in the hands of the highest grade of men has it been successful. With the scores of makers in the country one cannot judge the business by the amazing results obtained by six or eight of the leaders.

My visits to the ninety-three plants and conferences with the leading men in the industry indicate that the present position of the automobile trade has been attained only by concentrated efforts on the part of great engineers and industrial leaders who could forecast the future and who co-operated through the N. A. C. C. with a view of attaining in the quickest possible way the present enviable condition. Combined with this was scientific manufacturing by men schooled in economy who had efficiency for the keynote in every department of their plants. As a result greater values than ever before are being offered and the former sheds that were used for factories have been supplanted by wonderful structures of cement, steel and glass, equipped with the most modern machinery.

In this work of co-operation the leaders of the industry have made history for themselves by aiming always to do the greatest good for the greatest number and showing a willingness to give and take at all times. Further evidence or this is shown by the plans now for an interchange of patent rights between the big makers in the N. A. C. C. The names of such leaders as Charles Clifton, president of the N. A. C. C. and a score of other men, who have been workers in trade organizations will always be recalled with gratitude.

In my rounds I was forcibly impressed with the readiness of car makers to supply every demand of the public. There is no inclination to force special types, and it is this that has hastened the increased buying of automobiles. Our makers supply cars small or large, low powered or high powered and seating two to seven passengers. They have been willing to furnish anything from one to eight cylinders and with conveniences undreamed of a few years ago. While the efforts of the N. A. C. C. and its connections have resulted in a marked standardization of fittings, connections and parts of cars, of little importance in themselves but bringing tremendous decreases in costs, each maker has acted as an individual in his designing and general engineering. Made in plants that are the equal of any in other lines of trade, the American car today seems to be almost perfect and so simple that it can be operated by man, woman or child, while the unique designs, fine materials, accurate building and unexcelled coach work with accessories and conveniences of every conceivable type assure a continuance of prosperity in motor car building.

HENRY B. JOY, PRESIDENT
Packard Motor Car Co.

It is pleasant for those who have followed the industry for the past 12 or 15 years to note the successes of those far-seeing makers who in the face of gloomy forecasts as to the future of the trade kept increasing their plants, opening up markets by providing the need and worth of the modern vehicle and thus increased the sale of cars and the prosperity of themselves and their associates down to the most inconspicuous factory worker. The business has been tremendously progressive and only the best men and best cars have succeeded. Many have given up during the past few years, which has cleared the atmosphere to the ultimate benefit of makers now doing business.

Michigan is still the leader, although many of the big car makers are in the east, our members being located in 42 cities in 11 different states, including New York, Pennsylvania, Virginia, Massachusetts, Connecticut, New Jersey, Ohio, Indiana, Illinois, Michigan and Wisconsin.

The automobile industry has grown to be third among the industries of the country because the motor cars supplied a need and because offerings were of amazing value. With the decreasing prices and low cost of upkeep has come a greater number of people who could buy cars. It is an ideal position to know that everybody in the country wants an automobile. It is only a question of price.

Prices would appear to be almost at the minimum point, provided quality is to be maintained. Materials and labor, which incidentally is 47 per cent of the list price of the car, are most important in any manufactured article, and if skilled making and good materials are to continue in use there would appear to be small chance of any lower prices for cars of the present types. It is worth noting that the high priced cars continue in constant demand, although of course the greatest increases have been made in the moderate priced cars that approach within the buying range of an increasing number of people.

The New Ideas of Motor Show Visitors

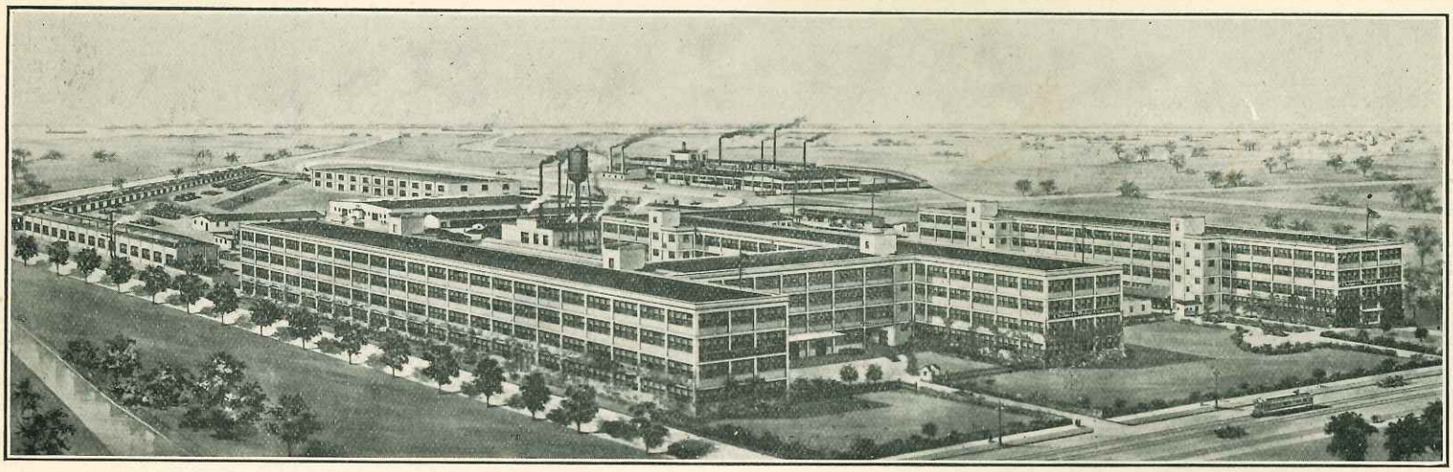
By JOHN N. WILLYS

The atmosphere pervading the automobile show has changed greatly during the past few years. A decade ago the automobile show was somewhat akin to the horse show as a society function and a rallying place for the ultra rich. But a look at the throngs invading Grand Central Palace this week will convince even the most skeptical observer that the great proportion of the demand for automobiles comes from the people of moderate means.

The demand of the motoring public today centers on the inexpensive car of proved capabilities. The average automobile owner wants a car of moderate price, whether it be of four or six cylinder construction, and one that is also economical in operation and yet sturdy and smooth in action.

The modern business man purchases an automobile on the same basis as he buys any other article on the market. The car that will give the best return on his investment is the one that meets with his approval. He demands an automobile today because he has found it to be a necessity. To own a car means that if you can help it you will never again be without one. The recognition of the usefulness of the automobile has created a staple demand which stimulates manufacturers in an effort to provide an increasingly greater value.

A few years ago, the thought of offering a 35-horsepower car, completely equipped in



PLANT OF THE CHALMERS MOTOR COMPANY, DETROIT.

every respect, for $1,075 would have been considered highly impracticable. Yet, the increase in production and manufacturing efficiency of our factory has enabled us to give a constantly increasing car value for a continually decreasing price.

Medium-priced automobiles have reached a stage of development where they are practically as complete in equipment as the most expensive creations of domestic manufacture. Electric lights, electric self-starter, speedometer, oil-feed indicator, top, wind-shield, door-pockets, curtain box, tire-carrier, robe-rail and many other articles which used to be confined exclusively to high-prived automobiles are now included in the standard equipment of the better cars at all prices.

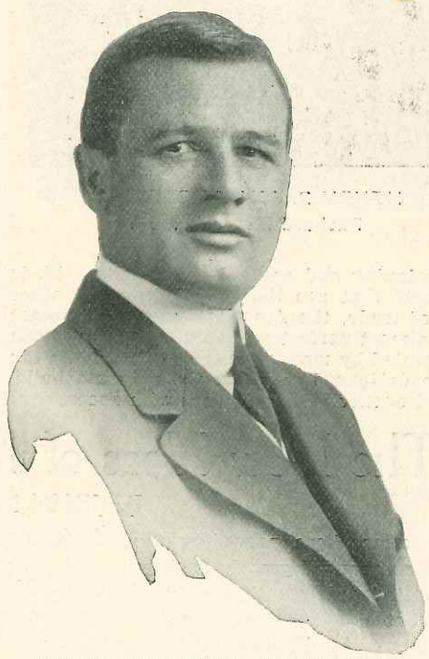
During the past year approximately 400,000 people have purchased medium-priced automobiles. This total gives some idea of the astonishing growth of the industry in its comparatively short span of life, and at the same time cannot but impress upon the public that the time has gone when the automobile was considered a luxury or a fad.

Nearly Two Million Motor Cars in 1914

Despite the general business depression and the European war the past year has shown an enormous increase in the number of motor cars in the United States, nearly 700,000 more automobiles having been registered in the various states, according to figures made public by Secretary of State Hugo. The total number for 1914 is 1,808,441, from which receipts were $11,925,295.56. The largest receipts were from New York, amounting to $1,527,396.36; California coming next, with $1,338,424.50, and Pennsylvania third, with $1,184,657.50. No other states reached the $1,000,000 mark. Blanks in the following table indicate that no figures were available:

State.	1914.	1913.
New York	168,039	132,519
Illinois	132,199	95,592
California	122,625	.....
Ohio	122,071	86,153
Pennsylvania	112,000	79,846
Iowa	106,250	77,269
Massachusetts	77,246	57,197
Texas (estimated)	77,000	28,000
Michigan	76,325	41,394
Indiana	66,500	61,177
New Jersey	59,637	50,491
Missouri	54,537	39,541
Wisconsin	53,161	34,647
Nebraska	51,242	34,943
Kansas	50,107	12,937
Washington	29,650	21,000
Connecticut	29,317	20,136
Minnesota	23,000	45,054
South Dakota	21,385	14,700
Maryland	21,026	12,567
Georgia	20,905	12,919
District of Columbia (fiscal year)	5,639	11,614
Colorado	17,851	13,297
North Dakota	17,349	12,504
Oregon	16,347	14,114
Maine	16,025	11,112
North Carolina (since July 1)	14,719	7,710
South Carolina	14,000	.....
Virginia	13,984	9,023
Rhode Island	13,058	10,000
Oklahoma	13,000	.....
Kentucky	11,750	7,551
New Hampshire	10,596	7,254
Montana	10,215	6,102
Vermont	8,254	5,913
West Virginia (since July 1)	8,215	5,007
Alabama	8,048	5,314
Arkansas	5,635	5,100
Tennessee	5,470	8,900
Arizona (estimated)	5,000	3,132
Idaho (estimated)	3,400	2,426
Florida	3,368	3,720
New Mexico	3,090	1,972
Delaware	3,050	2,145
Utah	2,203	3,400
Mississippi (estimated)	1,800	2,217
Nevada	1,550	1,141
Totals	1,808,441	1,127,940

Further statistics show that for the past decade, up to Jan. 1, the various state highway authorities have expended for road construction the enormous sum of $162,328,645, of which $37,437,172 was spent last year. In addition the localities added for bridge and road repairs, making a grand total of $299,914,830. Of this, motorists have contributed in fees, $31,331,704.10.



HUGH CHALMERS, PRESIDENT
Chalmers Motor Company.

New York still leads in registrations, with a total of 168,039, a gain of 35,500. Illinois is second, as last year, with 132,199, a gain of 37,000. California is in third place, with 122,625, and Ohio fourth, with 122,071, a gain of 35,000.

Pennsylvania is fifth, with 112,000, a gain of 32,000, and Iowa sixth, with 106,250, an increase of 29,000. Massachusetts follows with 77,246, a gain of 20,000. Texas shows a gain of 49,000, Michigan 35,000, Indiana 5,000, and New Jersey 9,000, dropping from eleventh place.

Seven reports show a decrease in registration, Minnesota losing 22,000; District of Columbia, 5,000; Tennessee, 3,500; Utah, 1,200; Vermont, 650; Mississippi, 400, and Florida, 350.

Automobile Market Shows Great Future Possibilities

Nearly one and a half million automobiles have been sold in the United States since 1902, when the business may be said really to have begun.

The number of these machines that have gone to the scrap heap, is as yet negligible for commercial reckoning. The oldest is only 12 to 13 years old. Every one has seen the quaint old-timers in daily service.

These facts cause many to wonder where the hundreds of thousands of automobiles manufactured each year will go. They figure that there is now one automobile to each 70 or 80 people in the country. How many possible purchasers remain to be supplied?

Without taking into account the scrapping of old machines which must soon become a real factor, it may be said that stupendous as the business is, the possibilities have not been much more than "scratched."

Not quite 50 per cent of the automobiles in use are owned by farmers—and to the farmer the automobile is far more a utility than a luxury. It has become a real farm necessity, so recognized by all the farm press.

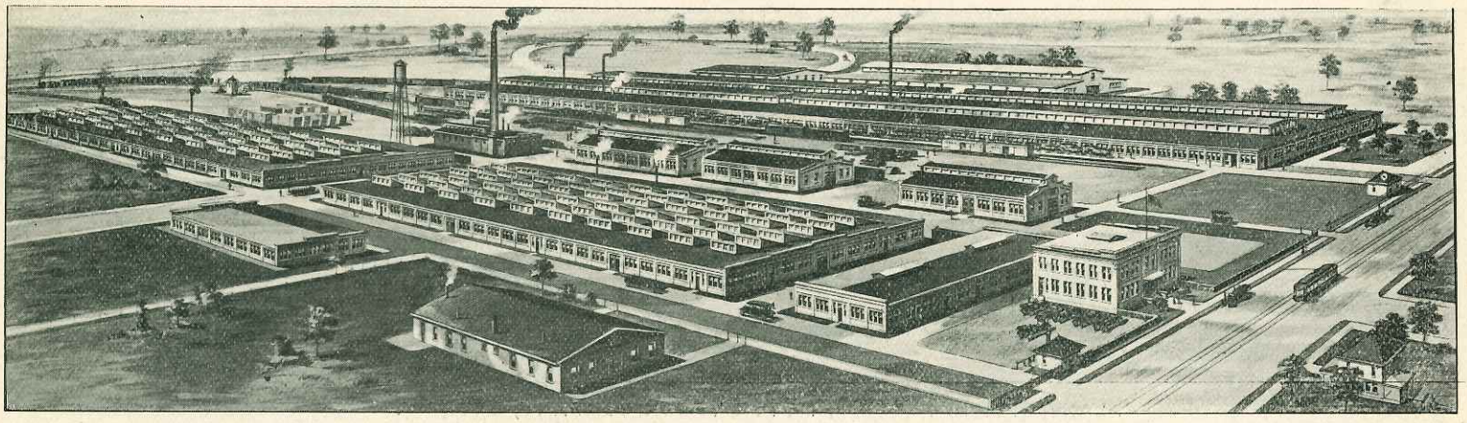
There are in the United States according to the census of 1910, 6,361,502 farms, with a total value of $40,991,441,090—an average value per farm of $6,444.

A supply averaging one automobile to a farm is a long way in the future—but the demand is not inconceivable. Some day, without a doubt, it will be approximated—and when it comes it will represent a degree of progress and efficiency so far ahead of the present as the supply of that day will be ahead of the present supply.

Thus far the supply is only about 10 per cent. The manufacturers would have to produce over 5,000,000 more cars to fill the farm market alone.

And there is yet the city demand to be taken care of.

These are undoubtedly some of the facts that led President William Livingstone, of the Dime Savings Bank, Detroit, to speak so enthusias-



WHERE THE MAXWELL MOTOR CAR IS MADE, DETROIT.

tically of the liberal support the banks are giving the automobile dealers, especially in the small towns where the dealers do a large part of their business with farmers.

Commodore Livingstone said in his address before the American Bankers' Association:

"As the greatest number of cars are sold during seven months of the year, makers and dealers have been borrowers, and it is a matter of record and congratulation that in the fostering of this growing industry bankers of this country have played a most important part with practically no loss. Discerning bankers in the past few years, especially have appreciated the stability of the industry and the standing of the men in charge and have cooperated to a marked degree, in establishing the business on its present high plane."

A Year's Test of Ford's Profit Sharing Plan

A year ago the Ford Motor Company announced that it was about to present its employes with $10,000,000 in the way of profit-sharing. Today each profit-sharing employe of the company is depositing in banks or investing in homes and lots an average of $48.76 a month. These workmen are buying homes, on contract, valued at nearly $5,000,000, on which they have paid nearly $1,200,000. The gain, per man, in bank deposits is 130½ per cent; in life insurance, 86 per cent; in homes owned, 87½ per cent, and so on down the list.

Between 1,000 and 1,100 foreign employes are learning English at the Ford plant, taught by other Ford employes, who have caught the spirit of the co-operative movement and are doing the teaching on their own time, without intrinsic reward.

There is a marked increase in the number of naturalized citizens; a marked improvement in the tendencies of the men toward thrift and economy, in their habits, morals, health, and physical attributes. There is a tremendous drift toward better living conditions, more sanitary homes, and cleaner and better neighborhoods.

When the profit-sharing plan was put into operation, an investigation was made by the company into the financial standing, living conditions, habits, etc., of every employe in the plant. When it had been in operation five months another similar investigation was made; this time, however, only of the 9,251 men that, under the qualifications of the plan, were participating in the profits.

On the first investigation it was found that out of the 16,000 men employed by the Ford Motor Company, 5,872 had bank accounts, totaling $996.418, or an average of $62.12 to each of the 16,000 men. The average amount of life insurance carried by 2,572 employes was $960.99. Three hundred and sixty-four employes owned their own homes, of which the total value was $468,230, and 113 owned lots to a total value of $67,160; 1,256 men were buying homes, valued at $3,282,331, on which a total amount of $1,111,258 had been paid, and 680 were buying lots, valued at $413,854, on which $100,757 had been paid.

The number renting monthly was 3,928, paying a total monthly rent of $58,576. The number renting weekly was 407, paying a total weekly rent of $1,218; 4,441 men paid a total monthly board bill of $86,171, and 2,255 paid a total weekly rent of $12,906. The neighborhood in which 5,370 men lived was good, 5,119 fair, 2,471 poor—that of the balance, unknown. The home conditions of 6,091 men were found to be good; 3,961 fair, 2,971 poor, and those of the rest could not be determined.

The number of married men exceeded the number of single men by 1,496. There were 128 widowed men, and 18 divorced. The habits of the men were generally good, but in this regard 2,411 were found to be only fair, and 136 poor. Seven thousand eight hundred and seventy-two were English-speaking; 4,334 were non-English-speaking; the rest unknown. There were 3,908 naturalied citizens, 7,603 not naturalized; the rest unknown.

WALTER E. FLANDERS, PRESIDENT
Maxwell Motor Company.

On the second investigation, covering 9,251 men—the rest being ineligible by lack of one qualification or another to participate in the profit-sharing plan—it was found that 7,540 men had bank accounts, totaling $1,603,768, or an average of $212.70 per man. Only 1,711 of these men had no bank account. Of the 9,251 employes under the profit-sharing plan, including those without bank accounts, the average (per man) was $173.36.

Of the 9,251 profit-sharing employes, the second investigation showed that 3,149 carried a total life insurance of $3,210,502, average $1,019.58; 508 owned homes to the total value of $613,220; 155 owned lots to the total value of $87,210; 1,526 were buying homes to the total value of $4,480,503, on which the total amount paid was $1,693,937; 969 were buying lots to the total value of $681,522, on which $172,992 had been paid; 3,543 were paying an aggregate monthly rent of $59,210; 425 an aggregate weekly rent of $1,313; 2,054 an aggregate monthly board bill of $45,349; and 1,445 an aggregate weekly board bill of $9,145.20.

The home conditions of the 9,251 men were found to be: Good, 6,394; fair, 2,717; poor, 140. The neighborhood conditions were: Good, 5,293; fair, 2,747; poor, 211. Of these 9,251, 6,212 are now married, 2,847 single, 149 widowed, and 3 divorced. The habits of 5,053 are good, 4,108 fair, only 17 poor, and 96 undetermined. Six thousand one hundred and seventy-five are English-speaking, 3,076 non-English speaking, 3,604 are naturalized, and 5,611 not naturalized.

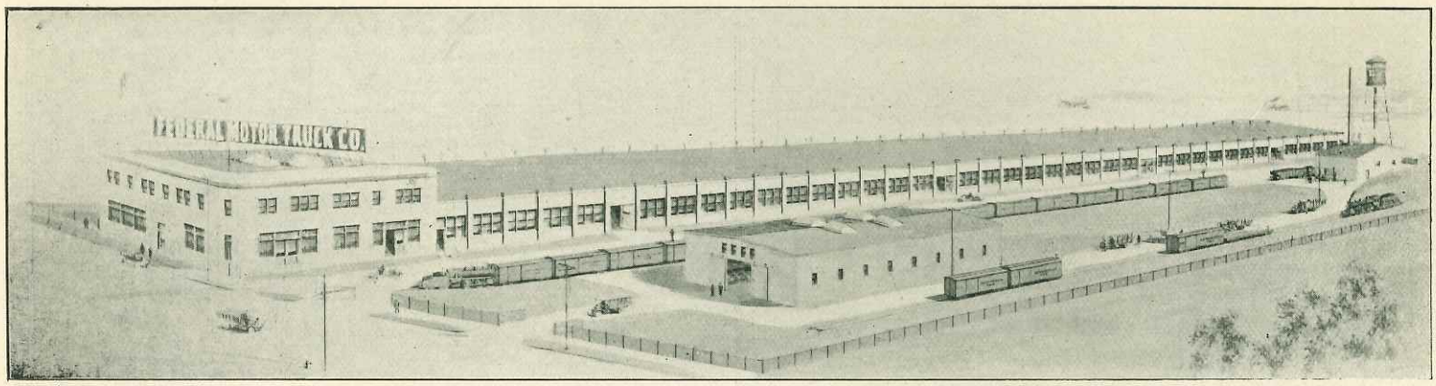
AMERICAN CAR POPULAR ABROAD.

The remarkable increase in popularity of the medium-priced American car abroad is especially marked in localities which, until a year or two ago had been supplied almost entirely with cars of foreign manufacture. Although the outbreak of war in Europe has brought this fact into particular prominence by developing the foreign market for America even more rapidly, the general excellence of the American car was already making itself felt long before hostilities started.

The realization of the full extent to which the English car has been ousted from South Africa had come to John Bull before this year. Since the start of war practically all of the cars sold in South America have been of American construction. It is declared that although the closing of the English factories, brought about by the war, forced the South Africans to call on America for their cars, the same ultimate result was simply a matter of comparatively few years.

Figures furnished by one of the South African distributors of the Willys-Overland Co., showing the growth of imports of American-built cars in that territory, prove highly interesting. It will be seen at a glance that car imports from England were falling off rapidly in proportion to the development of the motor car movement in English territory long before the declaration of war.

In the race for supremacy, which may be said to have started in 1909, England has fallen far behind the proud position which she had hitherto occupied. In 1908 the total car imports from the United States were valued at a little more than $5,000. The following year they sprang to $90,073, and for the four years, 1909-1912, their total value was $1,043,-



PLANT OF THE FEDERAL MOTOR TRUCK COMPANY, DETROIT.

515, or 29 per cent of the value of cars imported from England for the quadrennial period.

Imports for 1913 from America were $2,623,648, as against $2,119,029 for England, or more than 23 per cent in excess of England's total.

As against the 1912 figures, the imports from England dropped in a single year from 53 per cent of the total value of cars imported to South Africa to 39 per cent in 1913. American cars, on the other hand, have risen from 25 per cent to just over 49 per cent of car imports during last year.

According to reports from the Willys-Overland Co., the popularity of the American cars has shown a proportionate increase during this year, although for awhile the hostilities in Europe threatened to paralyze the motor car business in Africa. Reports of the company show that on Dec. 15 the total export business practically equaled that of the entire calendar year of 1913. This is entirely exclusive of several large shipments made to belligerent nations, and is in spite of the fact that shortly after the outbreak of war motor car business in Great Britain and Europe was practically at a standstill, and remained so for some time. But in parts not directly affected by the war, business has shown a great increase over what it was in these same districts last year.

One of the South African motoring papers makes the following explanation of the rapidly growing popularity of the American car in that territory:

"The reason for the amazing growth in the figures of imports from America and the per contra decline in the figures of English cars is to be found not only in the comparatively low initial cost of the American car, but in the fact that American manufacturers have borrowed the good points from English constructional practice and adapted these to their own products. The result has been a vehicle of a high proportion of efficiency which has made a strong appeal to buyers of moderate means. Although the South African purchasing public to a very considerable extent has been prepared to pay more money for an article than the average American, we find that the medium-priced American cars have won the popular approval here. The English car manufacturer will have to realize that the trend of the times is against him in this market."

SWEDEN TO MAKE BALL BEARINGS.

A factory is to be built in Goteborg, Sweden, for the manufacture and sale of ball bearings invented by C. G. Soderlund. The capital stock will amount to not less than $120,600 and not more than $361,800. The minimum capital has been subscribed by the organizers, of which the following are residing in Goteborg: Director M. Lyckholm; Consul Karl Kindal; V. Mansson; N. Nilsson, merchant; C. G. Soderlund, engineer; Director C. Anderson; and S. Reuterskiold, engineer.

It is reported that the intention of the company is to manufacture ball bearings for heavy pressure; that is, for railway cars, tramway cars, etc. Mr. Soderlund's invention is said to be especially suitable for such rolling stock.

The company is to have its head office in Goteborg and a site of a few acres of land has been purchased on the island of Hisingen. The site is close to a wharf. Work on the erection of the factory building has already commenced. The first shops will be built for a personnel of 300 men.

The engineer states that the factory will be completed in March, 1915. Several firms have already sent in tenders for machinery, but no purchases have as yet been made. (See Foreign Trade Opportunity No. 12714, in Daily Consular and Trade Reports for March 16, 1914.)

The Motor Truck's Part in the 1915 Boom

By H. P. Sigwalt, Federal Motor Truck Co.

"The year 1915 is bound to be a big year. And the business boom is going to start very early in the year." That is the opinion of men in general as to the business outlook for the new year we are just commencing.

Sane optimism is this—not optimistic bunk.

H. P. SIGWALT, ADV. MGR.
Federal Motor Truck Co.

Considering conditions abroad, whether the war continues or comes to an abrupt close, and considering the relation of those conditions to this country, it isn't hard to figure out that "General Business Increase" will have to invade the factories of the United States very soon.

What has been experienced during the period of more or less depression in different lines should now serve as a business stimulant, for it has trained us into good business-fighting condition.

And good motor trucks will be one of the most important tools Mr. Business Man can use in the creating and handling of this increased business.

The supply of good horses in this country has been severely reduced by the European wars, and it will be many years before it will be possible to get any draft horses imported from the great draft horse farms of England, Belgium or France.

So it is more important now than it has ever been before, for the progressive business man to investigate thoroughly what motorized equipment will be worth to him.

Such an investigation will not be hard to accomplish either, for during the past year the Federal Motor Truck Company has made actual traffic investigations into many different lines of business. So we are now in a position to give the real dope—actual figures—on what the motor truck can do, as compared with horse-drawn equipment.

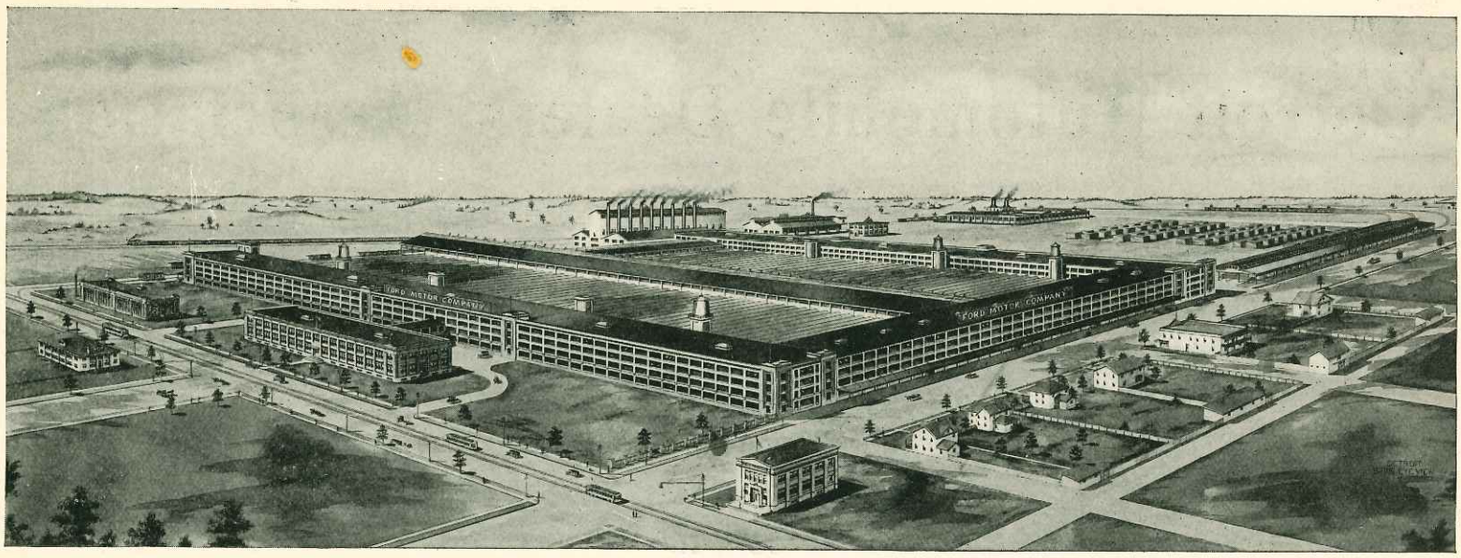
This information has been prepared so as to make it easier for busy men to decide on the most efficient equipment for their transportation work. And in addition to giving the results of these investigations by our traffic engineer, Robert C. Hargreaves, we are prepared to give advice on general traffic conditions in different lines of business, combining our own experiences with the knowledge of some of the foremost men of each industry, whose ideas and suggestions we have been fortunate to secure.

Mr. Hargreaves will continue his traffic investigations in general, and will also make special investigations for any concern desiring actual figures on their present transportation equipment.

We have found that users of horse equipment are very apt to take into consideration only a small part of the actual total cost of using horses. We have therefore compiled forms that make it easy for users of horses to find the exact cost of such equipment, and for those concerns who are using some horses and some trucks, we have prepared truck cost forms also, so that the two methods can be continually compared.

All of these helps are announced through and published in our new magazine, "Federal Traffic News," which is sent free of charge to anyone interested. Much interest is being evidenced in the "Traffic News" by truck drivers and horse drivers and on up to the heads of some of the biggest concerns in the country.

It is this general interest in the great ef-



PLANT OF THE FORD MOTOR COMPANY, DETROIT.

ficiency of trucks that will eventually make the motor truck industry a great power in the development and handling of greater business in all lines of trade.

With actual facts to present, and with conditions such as they are with respect to horses, business men can more readily see why good motor trucks will be a decidedly important factor in putting business of the United States on a firm basis, by reason of the great efficiency and economy offered, and more trucks will replace horses from now on than has been possible before.

The Motor Car an All the Year Utility

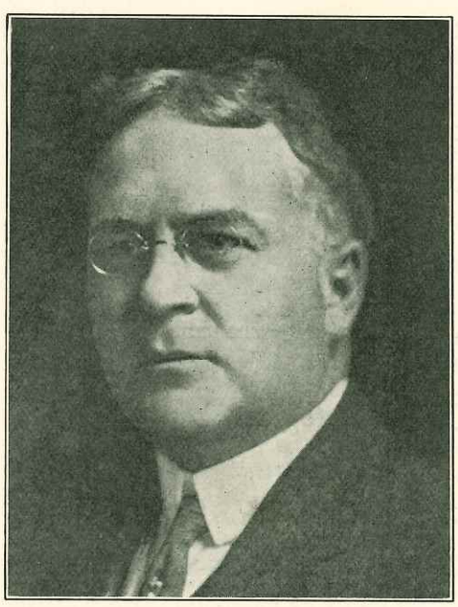
By George W. Dunham, of Chalmers Motor Car Co.

The automobile has at last arrived at a point where it is an all the year round necessity in all parts of the country. With the exception of those few localities where with the winter snow comes in such quantities as to make the highways absolutely impassable the idea of laying the car up for the winter has practically disappeared. Three or four seasons back the first breath of cold weather set a large percentage of automobile owners to talking and planning on storing the car for the next few months; how it was to be put away, jacked up off the tires, properly covered up and innumerable other details. This year even though we have had some severe cold I have not heard more than two or three suggestions of such an idea. The reason is not difficult to find.

In the past cars were laid up during the winter, not because they would not travel through a reasonable amount of snow, but because it took an exceedingly brave person to continue to use his car after the first few experiences in starting in really cold weather. In the first place it was no child's play to turn the motor over at all, as the oil congealed to such an extent that the motor became very stiff. Even after the motor had been turned over two or three times and partially freed it was difficult to get an explosion in the cylinders, because gasoline when icy cold won't vaporize readily.

To make a gas out of gasoline it is necessary to bring the fluid up to a certain temperature so that it will give off a vapor, or to break it up mechanically into such small particles that it will float in the air in the form of a mist. The latter way is termed making a "mechanical gas." Obviously if the engine is freezing cold there is a little chance of making a gas by heat. If the engine is turned over fast enough in starting, even if everything is cold, the air rushes through the various passages into the cylinders at such velocity that the gasoline is torn into minute particles, forming the "mechanical gas." Then the motor can be started easily.

Plainly, then, in turning over a motor that is exceedingly stiff from cold it would be impossible unless one were very strong to vaporize the icy cold gasoline mechanically. Consequently it became necessary to squirt quantities of raw gasoline into the cylinders, to pour hot water over the carbureter and intake manifold and to resort to other expedients. Or if one was ingenious he carried a mixture of gasoline and some highly volatile fluid, such as ether, which was squirted into the cylindrs in small quantities to make combustible gas. Perhaps, far away from any source of help, with a motor that absolutely refused to start, you have resorted to the most dangerous expedient of all—burning beneath the carbureter some waste or a rag soaked in gasoline. This, if it didn't burn the car, gave the heat necessary for starting.



JAMES COUZENS, VICE PRESIDENT
Ford Motor Company.

But now if the roads are at all passable cars are driven throughout the winter, thanks principally to the electric starter. With a correctly proportioned and properly maintained starting equipment there is no reason to crank the engine. No matter how cold the weather, good starting equipment properly cared for will turn the engine over fast enough to make it start.

Those who drove in the days before self-starters will remember how on freezing, stormy days it was first necessary to raise the bonnet and inject some gasoline or volatile mixture into each cylinder; how then one looked to insure that he had not forgotten to turn on the switch, perhaps listening to be sure that the vibrators on the coils were working properly; how the little tickler on the carbureter was operated to insure that there was gasoline in the carbureter and to flood it so that the first turn over would draw gasoline into the cylinders.

After all of these precautions the next move was to insert the starting crank and if the weather was very cold to jump on it to break the engine loose. Then at the expense of much energy slowly turn the engine, slowly indeed at the very best.

If the weather was very cold it was the usual thing to crank the motor until one was exhausted, then open the petcocks on the engine and inject more gasoline into the cylinders, look to make sure that the switch was on and then tackle the crank once more. With luck the second or third attempt at the crank would cause the engine to snort once or twice and then stop. Then it would be cranked again and after much snorting and much loss of breath and muscle on the part of the driver the motor might condescend to run.

"What did you care if the motor did run hit and miss for the first mile or so? What did you care if at the end of the first few hundred yards the engine would cough consumptively and stop—just as long as it would start more easily than the first time? Is it any wonder cars were laid up in cold weather?

In these days of electric starters one has but to move the switch and the motor starts in ordinary weather. If the weather is cold it is usually necessary first to adjust the carbureter for a richer mixture. This is done entirely from the driving seat. In extreme weather it may be necessary also to turn a lever on the dash properly to prime the engine. Then throwing on the switch will surely cause the engine to start, provided of course the motor and starting system are in reasonably good condition.

Detroit Automobile Dealers' Association

EIGHTH ANNUAL D. A. D. A. SHOW—FOURTEENTH ANNUAL DETROIT SHOW, JANUARY 16-23, 1915.

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WAYNE OIL TANK CO	TANKS	76
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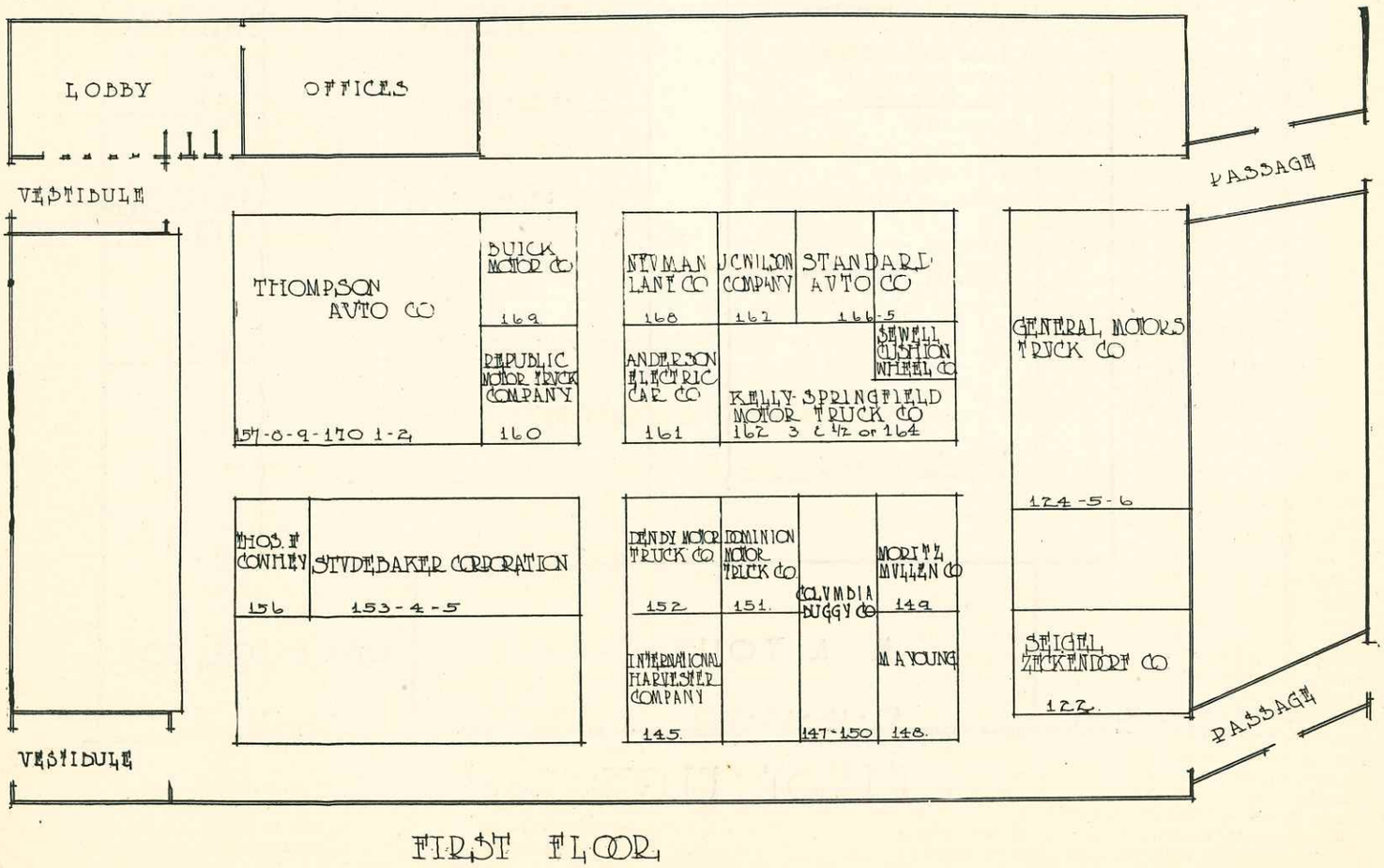
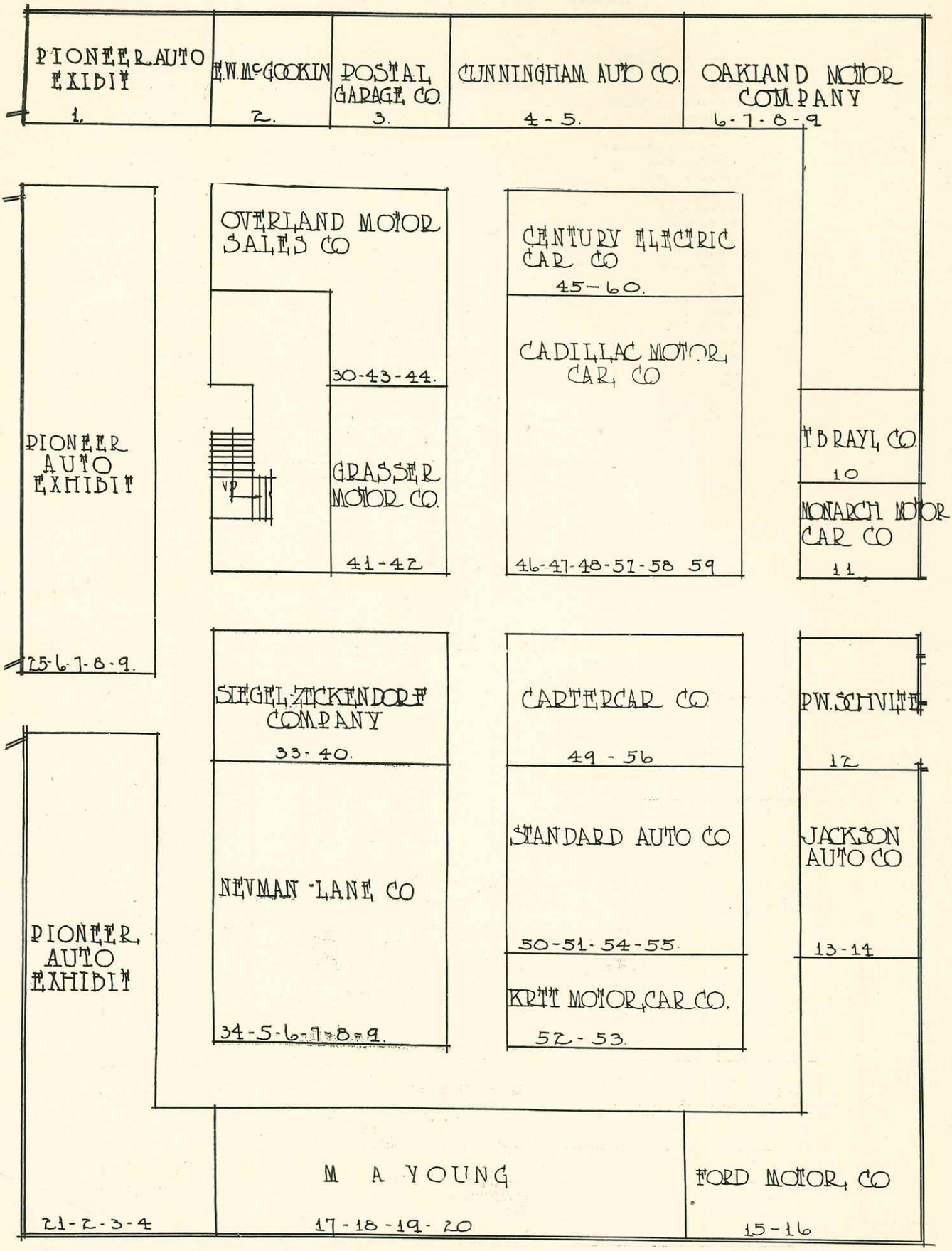
YOUNG, M. A	MOTOR CARS	17-18-19-20

Plan of Exhibits:




PIONEER AUTO EXIDIT
1.
E.W.McGOOKIN
2.
POSTAL GARAGE CO.
3.
CUNNINGHAM AUTO CO.
4-5.
OAKLAND MOTOR COMPANY
6-7-8-9
PIONEER AUTO EXHIBIT
25-6-7-8-9.
OVERLAND MOTOR SALES CO
30-43-44.
GRASSER MOTOR CO.
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CADILLAC MOTOR CAR CO
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50-51-54-55.
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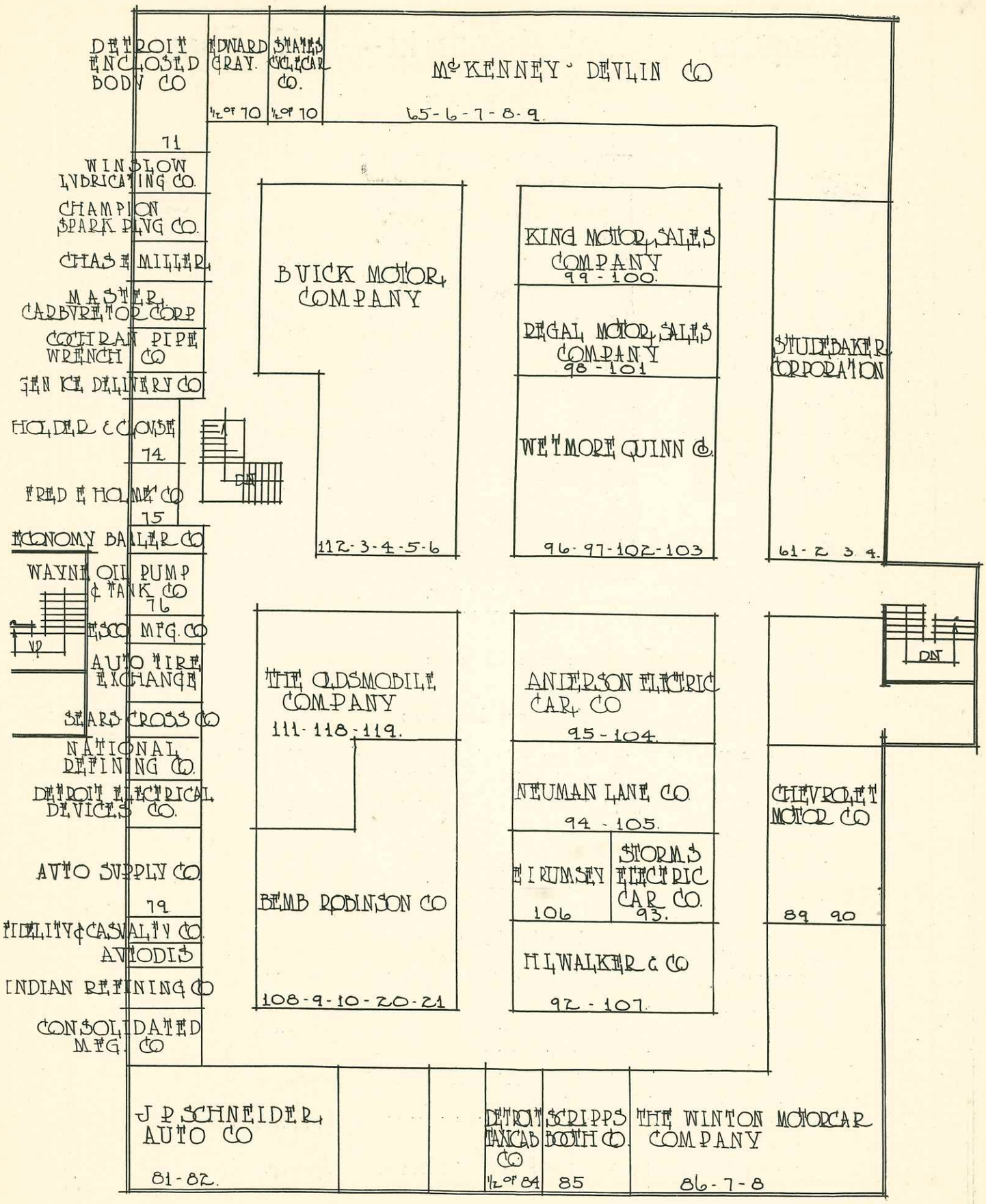
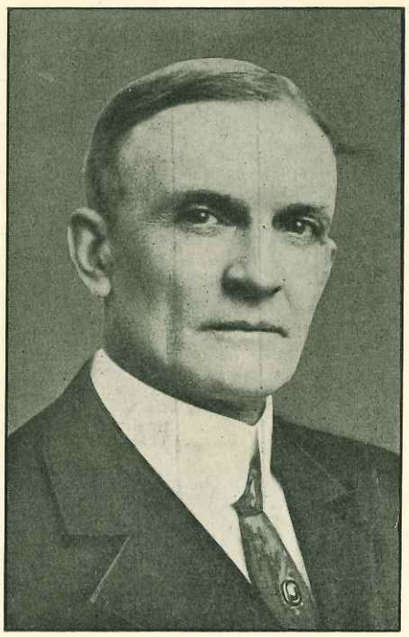
21-2-3-4
M A YOUNG
17-18-19-20
FORD MOTOR CO
15-16

FIRST FLOOR



SECOND FLOOR

Program of Entertainment---1915 Show



WALTER WILMOT,
Mgr. D. A. D. A. Show.

The entertainment features of the 1915 D. A. D. A. Automobile Show are under the direction of Dr. W. J. Coulter and W. J. McKay, two Detroiters, who have bent every effort to provide the best that can be secured in the way of novelty and diversion for the many visitors who attend.

The third floor of the Main Building is given over entirely to the amusement features of the show, including music, singing, vaudeville, dancing and the cabaret class of entertainment so appealing to society of the present day.

The music for the entertainment features, including the dances and vaudeville, is furnished by the Ben Shook's Orchestra. The Pringles, Detroit's popular ballroom step directors—masters of terpsichore—will have personal supervision over the dances each evening during the show.

Afternoon Program:

Daily—From 2:30 to 4 p. m.—Continuous Dancing and Vaudeville, with varied acts and popular dances in which the public is invited to participate.

The dancing floor will be under the control of the Pringles, Detroit's famous dancing instructors.

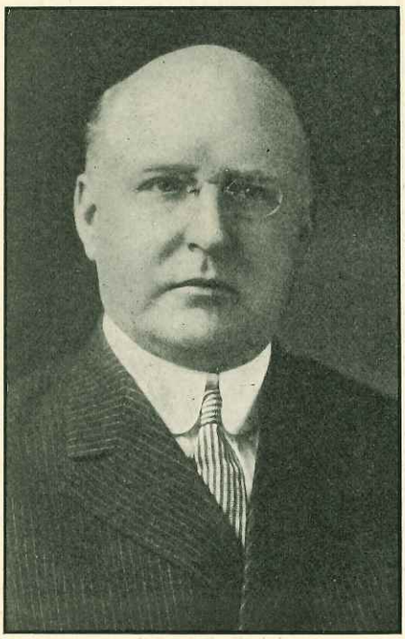
Evening Program:

Nightly—From 8:30 to 11 p. m., beginning Saturday, January 16.

8:30 p. m.—Dancing—One-step.
8:45 p. m.—Vocal Solo by Master Everard Lehman, Boy Soprano.
9:00 p. m.—Dancing—Hesitation Waltz.
9:15 p. m.—The Lorain Sisters, Chicago's famous singing and dancing team.
9:30 p. m.—Dancing—Fox Trot.
9:45 p. m.—Fancy Dancing—Miss Virginia Valli and Mr. B. R. Young.
10 p. m.—Hesitation Waltz.
10:15 p. m.—Vocal Solo—Master Everard Lehman, Boy Soprano.
10:30 p. m.—Dancing—One-step.
10:45 p. m.—"The Cabaret Kids," the biggest and best juvenile act in the country.

The dancing floor will be under the control of The Pringles, Detroit's noted dancing instructors. The public is invited to participate in the dances.

The Makers of the 1915 Show



C. C. STARKWEATHER,
PRESIDENT D. A. D. A.

F. N. SEALAND
SECRETARY D. A. D. A.

W. J. GORDON,
TREASURER D. A. D. A.

Clifton C. Starkweather

Clifton C. Starkweather, President of the Detroit Automobile Dealers' Association, was born in Detroit May 25, 1873, and is a graduate of the Detroit public schools, the Detroit High School and Smith's Business College. Mr. Starkweather began his business life as a clerk for the Lake Shore Railroad in Detroit from 1887 to 1891. He held the position of ticket agent for the Wabash Railway 1891 to 1895, traveling salesman for W. J. Gould & Company 1895 to 1900, for Crusoe Bros. Company 1900 to 1903, Lee & Cady 1903 to 1908, since which date he has been manager of the Detroit branch of the Buick Motor Company and president of the Swales Sales Company, dealer in automobile accessories.

Frank Nelson Sealand

Frank N. Sealand, Secretary of the Detroit Automobile Dealers' Association, was born in Cleveland, O., Nov. 19, 1877, and received his early education in that city. Mr. Sealand became connected with the automobile industry in 1905, starting in the factory of the Winton Motor Car Company, in Detroit. In November of the same year he went to Cleveland, where he was connected with the Winton branch until August, 1911. He then formed the Weaver-Sealand Motor Company, selling his interest in December, 1911, coming to Detroit to take charge of the Winton Detroit branch, which position he still holds. He is also vice-president of the General Laboratory Company, of Cleveland.

William James Gordon

William J. Gordon, Treasurer of the Detroit Automobile Dealers' Association, was born in Ingersol, Ontario, Nov. 9, 1872. He began his active career in the employ of the Michigan Central Railroad, serving a number of years as contracting agent. In 1900 he connected himself with the Anderson Electric Car Company, rising to the position of general manager of the Detroit branch of that company in 1911. Mr. Gordon is at present general manager of the Century Electric Car Company.

Hugh S. Quinn

Hugh S. Quinn, president of the Wetmore-Quinn Company, of Detroit, was born in Detroit December 2, 1878, and is a graduate of Detroit college. Mr. Quinn began his business life with the Detroit Telephone Company, continuing three years. He was special representative of the Michigan Telephone Company from 1901 to 1907, general manager in his own territory of the Home Telephone Company from 1907 to 1911, with the E-M-F Automobile Company about one year, and manager of the retail store of the Abbott Motor Company from 1911 to 1913, when the Wetmore-Quinn Company was organized. This company has the agency for the Paige and Saxon automobiles.

Walter Jacob Bemb

Walter J. Bemb, president of the Bemb-Robinson Company, was born in Essling, Germany, May 17, 1885, and was educated in the public schools of Germany and Detroit. He came to America in 1893, later beginning his active career in the employ of the L. Bemb Floral Company. From 1901 to 1905 Mr. Bemb served his apprenticeship in the automobile business with William E. Metzger & Company, then went to the Standard Automobile Company for a year, with the Ford Motor Company for another year, with the J. H. Brady Auto Company from 1907 to 1910 and the Hudson Motor Company from 1910 to 1912. In the summer of 1912 Mr. Bemb associated himself with L. J. Robinson in the formation of the Bemb-Robinson Company, which was organized for the handling of Hudson motor cars.

William Richardson Tracy

William R. Tracy, manager of the Detroit office of the Oakland Motor Car Company, was born in East Smithfield, Pa., April 21, 1883, and educated in the schools of South Haven Mich., and Stratton Business College, Chicago. Mr. Tracy began his business career in the employ of the American Express Company at Benton Harbor, and later with the same company in Detroit. He was appointed manager of the Detroit office of the Regal Motor Company in September, 1902, and to his present office with the Oakland Motor Car Company Aug. 1, 1912.

George Reason

George Reason, manager for the Cartercar Company, Detroit, was born in Unadilla, N. Y., August 31, 1973, receiving his education in the common schools, a graduate of the high school of Pinckney, Mich., and of Cleary College, Ypsilanti. After spending ten years on a Michigan farm Mr. Reason opened a general hardware and implement store in Pinckney, which he ran for twelve years. In 1907 he came to Detroit to take the position of manager of the Cartercar Company, which he still continues to hold.

Jule Caesar Ayers

J. C. Ayers, district manager for the General Motors Truck Company, with offices in Detroit, was born in Mt. Vernon, Ind., May 25, 1881, and educated in the public and high schools of Dayton, Ohio. Mr. Ayers started his business life as a clerk with the Western Union Telegraph Company, later engaging with the National Cash Register Company, starting in as clerk and holding various positions until he became instructor of the sales department in St. Louis. After nearly eight years with the National Cash Register Company Mr. Ayers spent 1908 to 1910 as traveling salesman for the Burroughs Adding Machine Company, moving to Detroit at the end of that period to take his present office with the General Motors Company.

Edward G. Bland

Edward G. Bland, Michigan manager of sales for the Jackson Automobile Company, with headquarters in Detroit, was born in Niles, Ohio, January 20, 1886. He began as collector

Makers of the 1915 Show---Continued

H. S. QUINN

W. J. BEMB

W. R. TRACY,

for the electric light company of his home town, was later city salesman for the Smith-Kirk Candy Company, Toledo, Ohio, and then traveled in Ohio and Pennsylvania for a wholesale grocery concern. From tire adjuster for the Michigan Tire Company, of Detroit, Mr. Bland soon worked his way up to the office of manager of the Detroit branch of the company. In October, 1913, he took his present position with the Jackson Automobile Company.

Mathew A. Young

Mathew A. Young, head of the M. A. Young Company, distributor of Reo and Mitchell pleasure and commercial cars, was born in Alliston, Ontario, December 16, 1872. He is a graduate of the public schools of Ontario and of the Ontario College of Pharmacy, Toronto, Ont. Mr. Young was in the retail drug business in Toronto, Lansing and Detroit from 1892 to 1900, when he formed the firm of Young & Miller for the purpose of distributing automobiles. Mr. Young has conducted the business alone since 1905.

Harry L. Cunningham

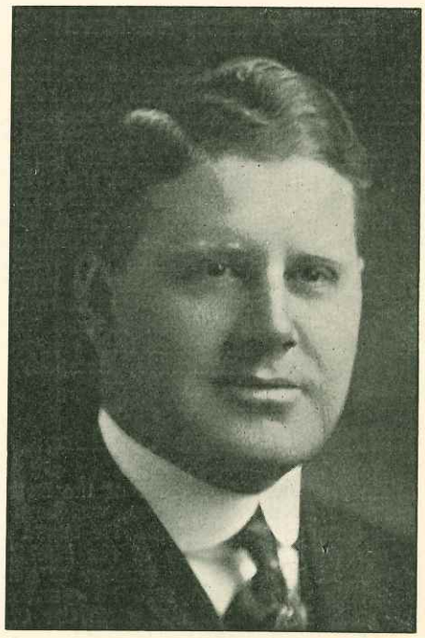
Harry L. Cunningham, automobile dealer, was born in Shelby, Ohio, January 30, 1885. He learned the trade of a machinist in the factory of the Ideal Bicycle Company in that city. In 1899 he secured a position as toolmaker with the Winton Motor Car Company in Cleveland, Ohio, going later to the Mansfield Machine Works, Mansfield, Ohio, and to the Geneva Automobile Company, at Geneva, Ohio. In 1902 he came to Detroit to look after the interests of the Winton Motor Company's interests, later becoming manager of the Ford Motor branch in Cleveland, 1905 and 1906, and the Detroit branch, 1906 to 1910. Since that time he has been president of the Cunningham Automobile Company, of Detroit.

John Howard Thompson

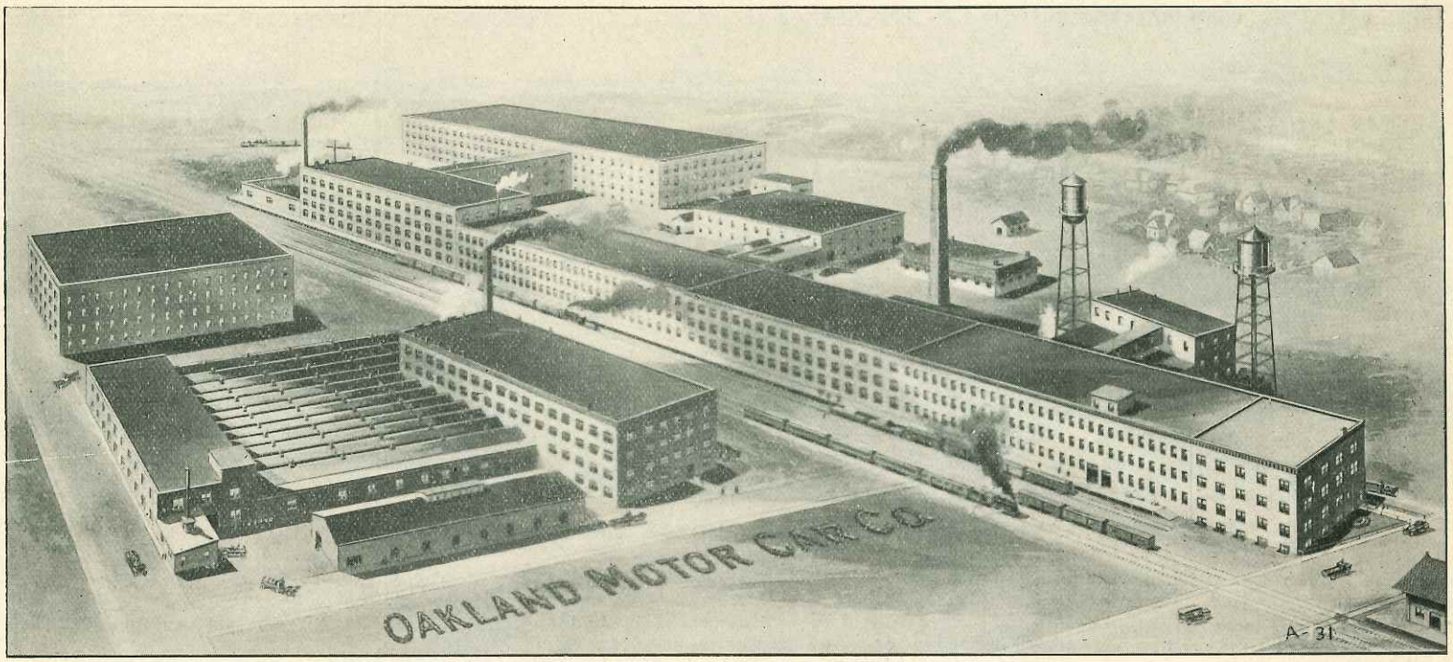
John R. Thompson, president of the Thompson Auto Company, was born in Detroit Jan. 19, 1883. Beginning his business career in the furrier trade, Mr. Thompson, after a year, entered the commission and brokerage business with his brother in New York, where he remained for two years. He spent four more years in the same business in Chicago, returning to Detroit in 1904 to enter the automobile business selling accessories. Later he became interested in the retail automobile business and had charge of the Michigan territory for the Warren Motor Car Company. He organized the Thompson Auto Company in 1909 for the purpose of distributing automobiles and motor trucks.

GEORGE REASON

J. C. AYERS



E. G. BLAND



PLANT OF THE OAKLAND MOTOR CAR COMPANY, PONTIAC.

The Financial Strength of the Reo Company

Perhaps no statement recently made in either the news or the advertising columns of newspapers, has created more discussion than that contained in the recent Reo announcement that "The Reo Motor Car Company is, financially, the second strongest in the world."

In order to give readers a chance to analyze the situation for themselves, the Editor of one of the leading Automobile trade journals asked Mr. Donald E. Bates, Secretary-Treasurer of the Reo Company, if he had any objection to publishing a statement of the company's condition.

"Not the least," laughed the financial guardian of the big Lansing concern, "in fact we rather welcome the suggestion just at this time when our innocent announcement of what we considered the obvious has created such a furore.

"We have never before referred to these matters—in fact we have perhaps too carefully avoided any mention of our financial resources. For example, if you've noticed the stock quotations of late you have doubtless observed that Reo is quoted at around 22. From that it would appear that the securities of this company are about on a par with some of the weaker ones whose 'common' is quoted at about the same figure. Now the difference is here. Reo par value is 10—not the usual 100. So the '22' really means 220!

"Here is our statement compiled at the end of our last fiscal year, October 31st, 1914. Parenthetically, I should mention that the period covered was fourteen months—due to the changing at our last stockholders' meeting, of the date of our fiscal year from August 31st to October 31st.

"Now we need not have mentioned that—some wouldn't if we may judge from important omissions in statements they habitually give out.

"Which brings us to a very important matter—the correct interpretation of a financial statement. It is remarkable how few can correctly read and diagnose a financial statement."

Here the editor interrupted: "Enlighten a poor journalist on that matter—if you make it understandable to one not so familiar with accounting and audits. The chief thing I notice about this Reo statement is its brevity—the few heads under which you class the various 'assets' and 'liabilities.' Is there any significance in that?"

"Yes, I suppose there is," said Mr. Bates. "You see it was prepared, not for publication, but for our shareholders, none of whom want to dispose of their Reo holdings. So its aim was to be lucid.

"Now you could subdivide the various items almost ad infinitum—and hopelessly befuddle

R. E. OLDS, PRESIDENT
R. E. Olds Company, Lansing.

the average reader—if there was anything to be gained by so doing—as for example, to influence the stock market so present holders could get from under!

"Yet, after all it is easy even for the tyro to get a pretty accurate estimate of the most elaborate financial statement. The rule is, 'Look for the Joker.'

"Of course it is impossible for anyone but an expert to ferret out all the jokers, but there are some anyone can see if he but looks.

"For example there's that indefinite thing, 'Good Will,' which generally is given a very definite valuation when there is a gap to be filled or a deficit to be offset.

"Other similar items made to perform similar service are 'Patents' and 'Trade Mark,' 'Trade Name,' etc., which usually account for another large lump of over-capitalization.

"It would be too much to say that patents, good will and trade mark constitute liabilities—but certain it is they do not belong among the 'assets.' No banker would so consider them. Yet they very often masquerade as such.

"So if you want to arrive at the truth, or near it, just take the item 'surplus' and subtract from that amount the values set on the items noted. For example, I quote from a recent 'financial statement' of a manufacturer not in the automobile business. Here we find, in round numbers, 'Surplus, $5,000,000.' Looks fine, doesn't it?

"But down here we find listed also as assets 'Good Will' and 'Trade Mark,' $15,000,000! Whew! that shows, instead of a surplus, an actual deficit of $10,000,000. That is how it would look to the banker did that concern ask for a loan, whatever 'uplifting effect' it might have on the ticker tape.

"Oh, yes, financial statements are most interesting when you know how to read them—that's why my file of them is so well thumbed. Romance is a weak word to apply to some of them.

"And that is why we feel some, I think, pardonable pride in letting you publish that Reo statement which is so brief and at the same time so lucid.

"Yet there are items in that which could be elucidated—and made much stronger even than it is.

"For example, some firms habitually put down in inventory under 'jigs, tools, fixtures, patterns, dies,' etc., the original cost of those special tools, whereas the model to which alone they are applicable is no longer current. Their value is therefore nil, or five per cent at most. Our 'ultra conservative' policy does not admit of that.

"And if you looked deeper you'd find that in the item 'Merchandise,' meaning manufactured automobile parts and materials, only those parts pertaining to current models are listed at full cost. Parts of 1913 models are inventoried at only 50 per cent, and those of earlier models, the demand for replacement parts for which is still active, at one-third,

PLANT OF THE CONTINENTAL MOTOR & MFG. CO., DETROIT.

while obsolete material and tools are scrapped instantly.

"Of course, such items only the expert auditor who has access to everything can discover in an inventory."

Asked for a few figures that would indicate the tremendous success of this concern whose conservatism has heretofore been known as its most prominent characteristic, Mr. Bates gave out the following astounding figures:

"In the ten years since its organization the Reo Company has paid to its shareholders dividends amounting to 1527 4-10 per cent of its original capitalization.

"Yet the policy. and especially of late years, has been to keep so much money in the company that it can at all times finance itself without having to depend on the banks, a policy that vindicated itself to a superlative degree during the past few months when ready cash could buy so advantageously; a condition of which the Reo Company, as stated in its recent ad, took full advantage and passed it on to Reo buyers.

"We are firmly convinced that the automobile industry is sound and permanent, and so we eschew practice too common in this industry of looting the treasury every so often," said Mr. Bates.

"Instead of depending on banks to loan us money to manufacture automobiles, it is no unusual thing for us to be drawing interest on deposits running up to and over two million dollars."

Continuing with figures, it was stated that the net profits of the Reo Motor Car Company for the fourteen months that constituted its last fiscal year were $2,539,187.34. And it was hinted another dividend will be distributed January 1st. And $600,000 worth of stock of the Reo Motor Truck Company, which formerly was owned by the Reo Motor Car Corporation, was, during the past year, divided among the individual shareholders of the parent company.

"We have never missed a cash discount nor paid a bill with commercial paper," concluded Mr. Bates. "So you see, we had ample grounds for the statement we made in our ad. We are sorry if it hurt anyone's feelings, even a rival's. But it happens to be the truth, so we can only hope it will serve to illuminate some other matters and improve the general character of 'financial statements.' It will then prove beneficial to all concerned."

Dodge Bros. Use 18 Acres of Floor Space

Ground has been broken at the big Detroit plant of Dodge Brothers for additions to their already extensive group of factory buildings. At present the plant of Dodge Brothers has over 18 acres of floor space and with the addition of the new buildings, five more acres of manufacturing space will be added to the factory.

The largest of the new buildings will be known as the pressed steel shop. This building will be 400 feet long, 77 feet wide and four stories high, though the walls and foundation are designed with a strength to carry ultimately six stories.

To give access to the new building from the new assembling plant, the latter will be extended 189 feet at its east end, giving it a total length of about 1,065 feet. A wing will be built from it spanning the loading platform, railroad tracks and driveways to connect with the south end of the pressed steel shop.

The pressed steel shop will have an area of about 130,000 square feet, while there will be about 90,000 square feet in the extension to the assembling building and the wing. On the east side of the building about one-quarter its length from each end are two wings, 25x52 feet, in each of which there will be an elevator 12.8x24 feet, while on each floor of these wings will be toilet, wash and locker rooms, stairways and halls.

Steel frame construction covered with concrete will be used throughout the first and second stories of the pressed steel shop, while the remainder of it and all the addition to the assembling building with the joining wing will be of reinforced concrete construction.

The exterior is to harmonize in design with the present buildings, all exposed brick corresponding in color and quality. All window sash and glazed doors will be of steel unit sash, glazed with the best quality of ribbed factory glass. Hard maple flooring dipped in parafine oil will be used to finish the main floors of each story.

The large shipping platform along the assembling building will be extended the full length of the addition and provision made for extension of the electric crane tracks. At the north end of the pressed steel shop will be a covered unloading platform with necessary crane equipment. Extending the full length inside of the new building are to be two crane runways just under the third floor so that material can be handled both to and from the first and second floors.

Additions to the office building of Dodge Brothers will make that structure nearly four times larger than formerly. At present the office building is a two-story structure, 116x52 feet. Alterations under way will make it a fourstory building, 320x72 feet, at a cost of about $300,000.

It is estimated the cost of the pressed steel shop and office building will be about $650,000. With the new buildings Dodge Brothers will be one of the three largest automobile plants in Detroit.

OPTIMISM BRED AT NEW YORK SHOW.

Using their own business as a gauge, big automobile men who were exhibitors at the fifteenth annual automobile show in Grand Central Palace, New York, last week, predicted a rapid upward turn in all commercial and industrial lines within the next 60 days.

"Automobile men at this year's show tell me that their sales during the show are running 20 to 30 per cent above last year's sales," declared S. A. Miles, manager of the New York exposition. "They believe this to be sound evidence that business conditions are on the mend. Otherwise people yould not be spending their money for motor cars.

"Dealers who were feeling their way cautiously a few weeks ago have now become pronounced optimists. They came in from all parts of the country with reports that their spring business will be as heavy, or even heavier, than usual. Even southern dealers have surprised us with statements that they look for a return to near normal conditions in the cotton belt before many months."

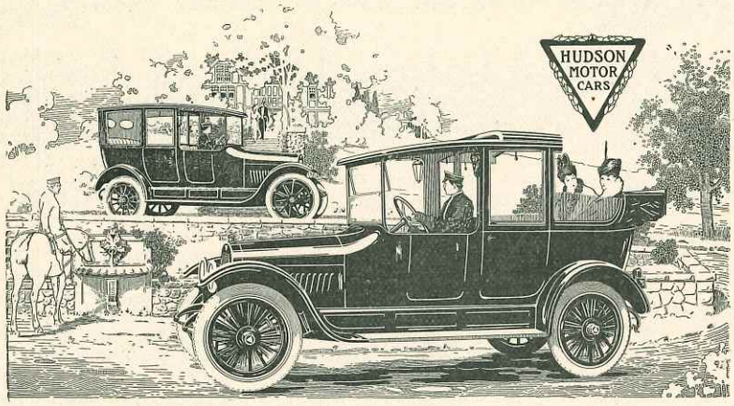
Heads of big motor car concerns and sales managers, both for high-priced and low-priced cars, coincide in Mr. Miles' views. Among those who thus expressed themselves were George M. Dickson, general manager of the National Motor Vehicle Company; Hugh Chalmers, of the Chalmers Company; W. A. Smtih, of the Mercer Company; Harry Houpt, in charge of the Mitchell exhibit; Harry J. De Bear, in charge of the Maxwells, and J. P. Drysdale, of the Cadillac Company.

Mr. Dickson attributed the mild boom in the automobile business partly to improved business conditions and partly to the European war. Americans who formerly spent their summers in Europe are planning to remain at home this year and are buying touring cars, he said.

Mr. De Bear, of the Maxwell Company, pointed out that representatives of the lower priced cars were reporting unusually heavy sales during the show week. This indicated, he said, that the "average man" who holds tight to his money when he fears hard times, is convinced that business is on the upward turn.

Mr. Smith, of the Mercers, and Mr. Houpt, of the Mitchell Company, with several other automobile men, emphasized the fact that the business revival indicated by auto sales extending into nearly every section of the country. Many western dealers who formerly looked over the new designs and planned their orders at the Chicago show later in the month, went to New York in order to get in shape for business earlier than usual.

This Hudson Landau-Limousine Pleases Prominent People



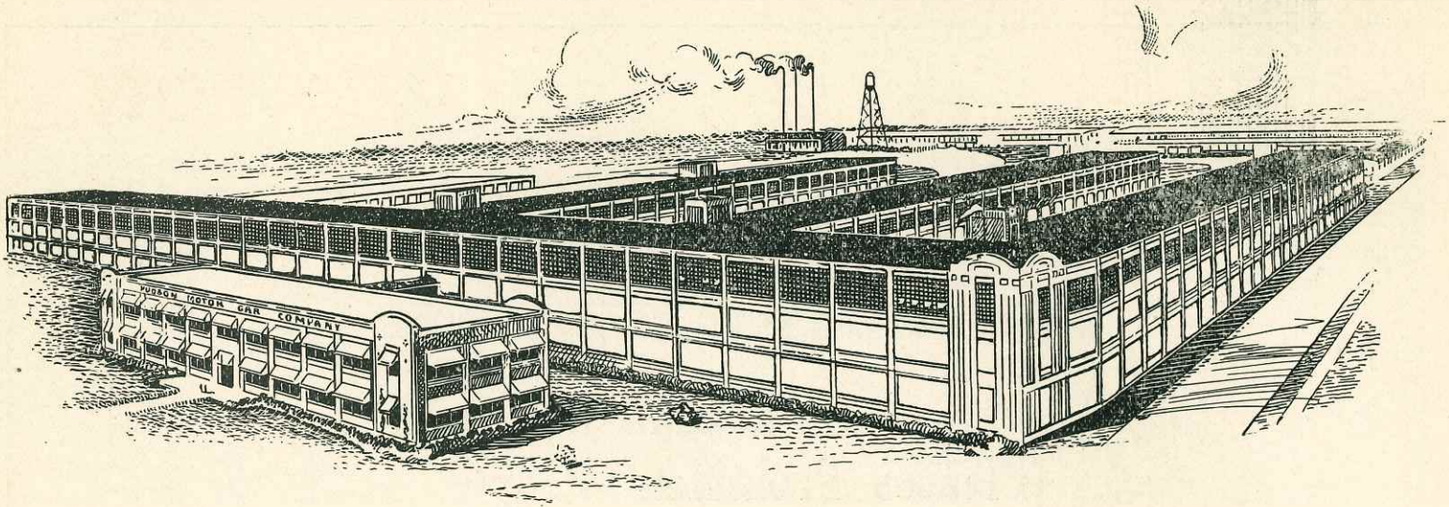
Paris, London and Vienna social leaders have set their stamp of approval on the Landau type. America—with its changeable winter days, some bright, some stormy—is following the lead of Europe. Two minutes' work by the chauffeur turns your Limousine into the open Landau. You enjoy the sun and air, yet — in a moment — you may have everything the Limousine affords of perfect protection and luxury.

The Landau is priced but a trifle above the one-style Limousine. Yet you get two cars in one. The workmanship is Hudson standard throughout. The car is the famous Hudson Light Six with all its advantages.
It will be a pleasure to show you the car and give you any desired demonstration.

The Bemb-Robinson Co.

286-292 Jefferson Avenue East, Detroit

Hudson Service—Day and Night



PLANT OF THE HUDSON MOTOR CAR COMPANY, DETROIT, SHOWING NEW A DDITION.

Great Growth of the Hudson Plant

Cheering evidence of satisfactory present and future business conditions is shown by the announcement of immense additions to be made to the already enormous factory of the Hudson Motor Car Company. So pronounced has been the success of the Hudson Six, and so insistent the demand of the public for cars that the present plant, large as it is, has proved inadequate to handle the business. It was therefore decided to add a third story to the main factory building and to three of the largest wings, an addition of floor space 2,200 feet long by 62 feet wide.

R. D. CHAPIN,
Pres. Hudson Motor Car Co.

In construction the addition will conform to the present style of pressed brick and reinforced concrete and steel. Plans for the big addition are finished, contracts have been let, and the work is now proceeding as rapidly as the weather will permit. The big addition is to be completed and the large premises ready for occupancy on March 1. This is arranged so that the Company will be in the best possible shape to handle the business of what promises to be the record year of its history.

The accompanying illustration shows just how big will be the new addition to this factory, which is already one of the largest automobile factories in the country. The floor space of the present factory is approximately eight acres. The addition of the third story means an increase of space of over three acres, or, nearly 50 per cent increase in floor space. After March 1 the total space will be almost 11 acres, which will make the Hudson factory among the largest in the world. The addition is a third story added to the main factory and to three of the wings, making a total length of 2,200 feet by 62 feet in width.

The Hudson plant is a model in construction and convenient arrangement of departments, and in light, sanitary and healthful conditions for employees. It is stated that the Company's business has been increased so largely by the popularity of the 1915 Hudson Light Six, that the added space is absolutely necessary in order to handle the production for next season.

Oldsmobile Sales Show Enormous Gain

During the last period of 1914 the Olds Company established remarkable sales records. Not only was the demand for cars a surprise to the manufacturers, but on December 1 there were hundreds of orders on file for future delivery and their plant found it necessary to maintain its increased production schedule in the dead of winter to meet the requirements of dealers.

In one year's time the Olds Company has brought about an increase of more than 700% in the number of its dealer connections. This record was made possible by the popularity of the four cylinder car, introduced on the market in August, 1914.

November deliveries of cars showed a large increase over November, 1913, while September and October, 1914, shipments were actually seven times greater than shipments for the corresponding period of 1913. Between August 1 and December 1, 1914, there were 624 per cent more Oldsmobiles marketed than during the same months of 1913, and several hundred orders the company has in hand for future delivery have insured against any appreciable slackening in the demand for cars during the winter months.

Few who have watched the progress of the Oldsmobile since the introduction of its light four have found any room for doubt that this company opened the way to further success when it produced a lower priced car which was almost exactly similar in appearance to its six-cylinder model.

Show 1,000% Increase

An increase of more than 1,000 per cent since organization in 1902, and a commodious and thoroughly modern factory at Brooklyn avenue and the M. C. R. R. Belt Line, are features of which the Douglas & Lomason Company, Incorporated, may well be proud at the beginning of 1915.

This company is especially well established in the manufacture of a long line of accessories and equipments for automobiles, the use of which is necessary to every completed car before it can be placed upon the floor of the sales and display rooms, or before the car can go into service for the purchaser.

Among the products of the Douglas & Lomason Company's plant are windshields and storm fronts, automobile metal trimmings of all kinds, foot board and running board mouldings, body hardware, coat rails, robe rails, malleable, brass and steel hinges, foot rails, sheet metal work and door locks. They also make corrugated metal running-board covers and complete foot board and running-board equipments, either with metal or linoleum covers, ready to go into the car.

The officers of the company are: President, A. G. Douglas; Vice President, E. J. Newell; Secretary and Treasurer, H. A. Lomason. The plant is now working to capacity with every indication that the end of the year will find the company ready for still larger additions to their plant in order to take care of the rapidly growing demand for their products.

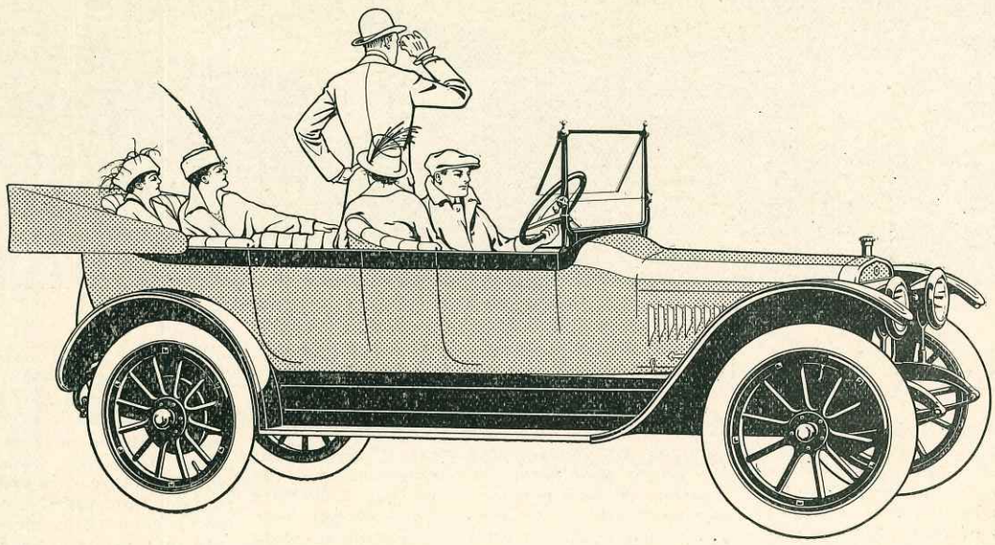
BANKRUPT PLANT UNDER HAMMER.

The sale of the real estate and property of the Peninsular Steel Castings Company in Detroit, which went into bankruptcy Oct. 17, was confirmed Jan. 8 by Referee in Bankruptcy Lee E. Joslyn. The property and real estate were sold to Mathew Finn for $8,650, the purchaser assuming an encumbrance of $21,208 on the real estate. The appraised value of both real estate and property was $62,480.

AUTOS WERE POPULAR GIFTS.

"Figuratively speaking, a number of stockings were bulging with Cadillac automobiles Christmas morning," said Manager Schulte of the Cadillac Detroit agency. "Christmas presents of automobiles were the thing this season, and among the lot which we delivered for that purpose were an even half dozen enclosed cars of the limousine, Sedan and coupe types."

A Totally New WINTON SIX



At a New Price—$2285

Excelling quality—never before produced except in the biggest and most costly cars—is now, *for the first time*, obtainable in a car "not quite so big"—and at a price hitherto impossible—the New-Size Winton Six, at $2285.

This car gives you everything that makes an automobile high-grade, good to look at, delightful to use, and creditable to own—even to that final note of quality, your own personally selected color scheme.

Here are some of its major features:

Motor—Famous Winton Six-Cylinder L-head motor. Bore, 3⅝ inches. Stroke, 5¼ inches. Unit power plant, completely housed.

Wheel Base—128 inches, eight inches shorter than the Model 21 Winton Six.

Electric Features—Bijur starting and lighting. Bosch ignition.

Clutch—Five-pair dry-plate.

Transmission—Selective sliding gears: four speeds ahead and one reverse. Direct on third.

Steering—Left drive, with center control.

Springs—Chrome vanadium. Semi-elliptical front. Three-quarter elliptical rear. Rear springs underslung. Dann oil-cushionized inserts in all springs.

Wheels—Wood or wire at purchaser's option.

Tires and Rims—36x4½ inch tires on all wheels. Non-skid rear tires. Firestone demountable rims.

Equipment—One-man top, silk mohair. Jiffy curtains. Power-driven tire pump. Plate-glass wind shield; both sections adjustable; upper for rain vision, lower for ventilation. Warner speedometer. Clock. Klaxon horn.

Body—The American Beauty type, a creation that makes this a genuine *pleasure* car. Especially graceful in design, and the last word in comfort. Divided front seats without extra charge, if you desire them. Spacious doors on concealed hinges. Finest of coach leather. Information upon request about roadster, coupe, limousine, and other bodies.

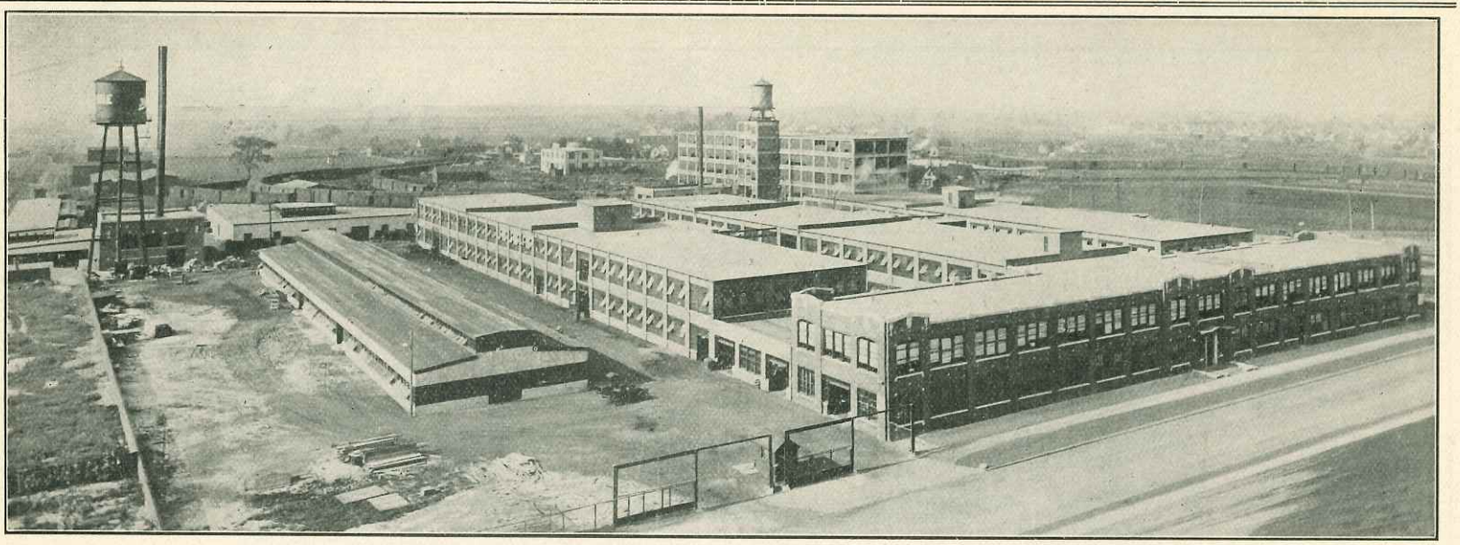
Colors—To avoid the monotony of cars that lack distinction and individuality, we permit the widest range of color schemes on this car. Each buyer may have his car finished to suit his individual taste. Metal parts trimmed in nickel.

Service—Buyers of this car will be entitled to the same thoro gratuitous service that is extended to buyers of the Model 21 Winton Six. That means continuous satisfaction.

Price—This car, which we term the Model 21A, sells at $2285, f. o. b. Cleveland.

Write for complete catalog

The Winton Motor Car Co., 130 Berea Road, Cleveland, Ohio



PLANT OF THE HUPP MOTOR CAR CO., DETROIT.

The Chalmers Line Now Most Complete

With its 40 horsepower "Light Six" and its 60 horsepower "Master Six" the Chalmers line for 1915 is probably the most complete ever built by the Chalmers Company. The two chassis models for the 1915 season include al' of the desirable types of cars, including five, six and seven-passenger touring cars, limousine, coupelet and sedan.

With a materially increased production the second series of the "Light Sixes" is priced at $1,650, for the five-passenger touring car. The 1915 "Master Six" has been increased in price to $2,400.

"We have in the 'Light Six' a car which is popular in price and which contains the high quality which always characterizes the Chalmers output," says Sales Manager Percy Owen, of the Chalmers Motor Company. "Our 1915 'Light Six' was first announced in May. The demand for this model has exceeded our own expectation and we have been able for the current season to plan a materially increased output.

"Our larger 'Master Six' is built in smaller quantities for those buyers to whom price is secondary. We have not designed this car to sell on price alone, but have made it in every respect a maximum automobile. The improvements made in the 1915 model have necessitated an increase of price in the 'Master Six' of $125."

The new Chalmers models show striking advances in body design. The larger "Six" is furnished in two body types; seven-passenger touring car and five-passenger torpedo.

Both of these cars are of the foreign "boat" design—decidedly racy in appearance.

The Torpedo has a single door on either side. The front seats are of the so-called "bucket type" with an aisle between them, affording easy passage. The seven-passenger touring car has the same lines as the Torpedo, but is fitted with the usual two doors in either side. The tonneau of the seven-passenger car has collapsible Pullman seats in addition to the regular tonneau seat with a capacity of three passengers.

The "Light Six" has the distinctive Chalmers-design body, and like the larger "Six," all "Light Six" types are finished at the top of the body with a "belt" in contrasting color.

On the "Light Six" chassis are also announced several new body types; a six-passenger touring car, a five-passenger inside drive Sedan, and a seven-passenger limousine. These three models are shown on the "Light Six" chassis for the first time in this second series. The five-passenger touring car and the coupelet are continued.

Mechanically 1915 Chalmers cars show no radical changes. Both the "Light Six" and the "Master Six" motors are of the T-head type; the larger developing 60 horsepower, and the smaller, 48 horsepower. More than 8,000 cars equipped with these motors have already been put in use, and the Chalmers engineers state that no radical changes or improvements could be suggested.

Perhaps the most striking features of these Chalmers power plants are their extreme flexibility, and the absence of vibration. Either

GEO. W. DUNHAM.

the "Light Six" or the "Master Six," is is positively stated, will pull at two miles an hour or at express train speed "on high." A favorite demonstration of the smoothness of the Chalmers "Sixes" is to balance a lead pencil on end of the radiator while the motor is running at 1,000 to 1,500 revolutions a minute.

For this season all Chalmers models are equipped with one-man top. Shock absorbers have also been added to the regular equipment, and the "Light Six" has as regular equipment one size larger tires than in the past.

The Chalmers-Entz electric starting and lighting system is continued, but with refinements which make the system even simpler than in the past. This starting system has proved one of the most attractive features of Chalmers cars. The fact that it makes the motors non-stallable has been described by experts as the greatest factor of motor car safety introduced in the past five years.

The distinctive Chalmers molded oval fenders, which are unique among American cars, remain unchanged. For over a year these handsome fenders have been an exclusive feature of Chalmers design.

The Chalmers Company began shipping the new six-passenger "Light Six" Aug. 1. The maximum production of the "Master Six" will be reached by Sept. 1.

The Chalmers Company is planning for the succeeding season an increase over its past year's busines, which was the largest both in number of cars sold and in dollars and cents of any year in the history of the company.

The Builder of the Show Building

The history of reinforced concrete construction in Detroit must of necessity include something of the experience and give honor to the ability of F. S. Robinson as a master in the art of building some of the largest and most modern manufacturing plants and palatial residences in the country. As head of F. S. Robinson & Company, Contractors, Mr. Robinson is now reaping some of the reward bestowed upon fidelity and integrity in the building line.

When the Trussed Concrete Steel Company first started in the business of construction work Mr. Robinson was general superintendent. That position he held for five years, and in that capacity he supervised the construction of the first modern and wholly reinforced concrete building in Detroit, the structure being for the Burroughs Adding Machine Company.

Mr. Robinson also erected the first reinforced concrete buildings for the Packard Motor Car Company, the Cadillac Motor Car Company, the Chalmers Motor Company and for several other large concerns in Detroit and other parts of the United States.

F. S. Robinson started in business for himself in 1912. Among some recent contracts handled by him are the five-story reinforced concrete warehouse for the Frederick Stearns & Company, the new office building of the Detroit Lumber Company, not yet completed, and several large and magnificent residences in the Bloomfield Hills and at Grosse Pointe.

While this company is fully equipped for, and makes a specialty of factory buildings and reinforced concrete work, as general contractors the concern is prepared to construct all classes of buildings with every kind of material.

Cadillac
Standard of the World

CADILLAC ENCLOSED CARS

The eight-cylinder motor gives to the Cadillac Enclosed Cars a smoothness of motion that is entirely new.

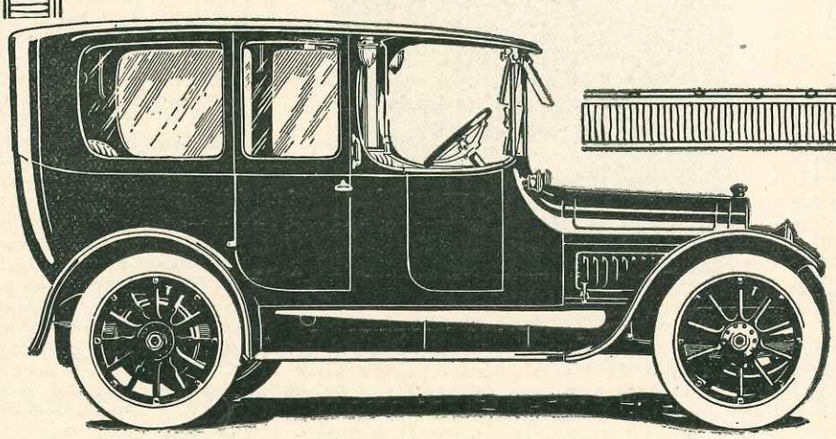
It accentuates and emphasizes the luxury and ease of riding which is so desirable in cars of this type.

Nor is this mechanical perfection the sole incentive to ownership.

For these cars are matchless specimens of the coach-builder's art.

Exteriorly they are handsomely proportioned and flawlessly finished.

The interiors are equally faultless, both in depth and softness of upholstery, and in the quiet richness of trimmings and appointments.

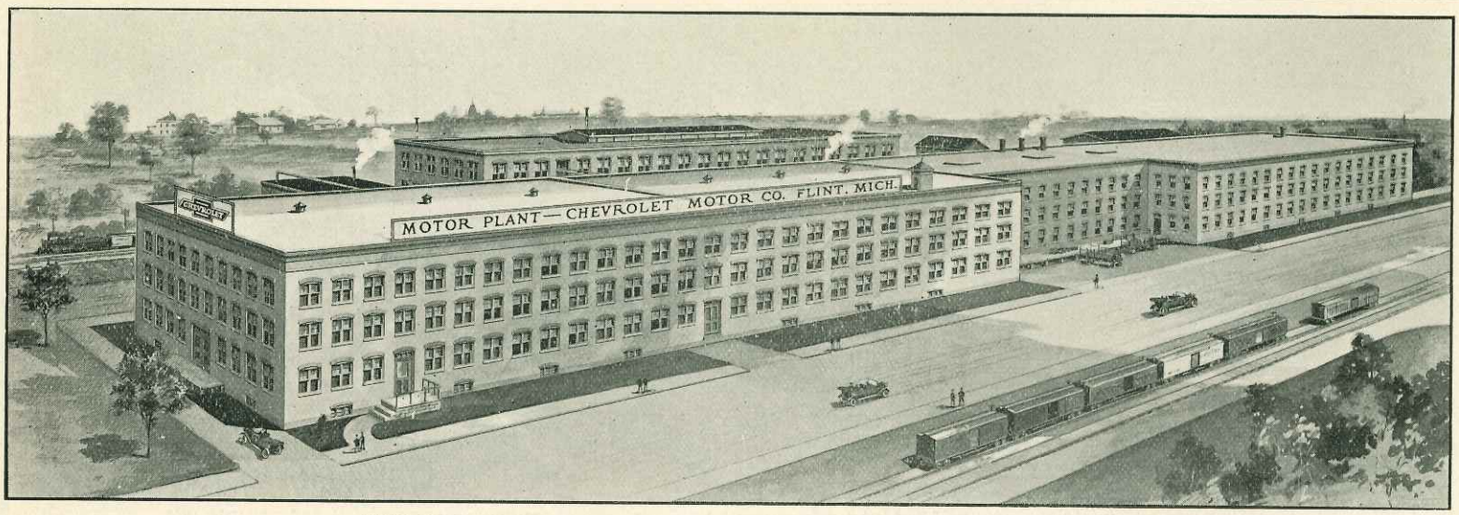


LIMOUSINE
(Seven Passenger)
$3450 F. O. B. Detroit

SEDAN
(Five Passenger)
$2800 F. O. B. Detroit

LANDAULET COUPE
(Three Passenger)
$2500 F. O. B. Detroit

Cadillac Motor Car Co., Detroit, Mich.



ANOTHER PLANT OF THE CHEVROLET MOTOR COMPANY, FLINT.

Chevrolet's Progress During 1914

The past year marked many changes for the Chevrolet Motor Company—changes which measure stability and progress. For one thing, the Monroe Sales Company, organized for the exclusive handling of Chevrolet cars in Detroit and Wayne county only, made itself a

L. D. HAAS.
Sales Manager.

valuable asset to the Chevrolet management. This company was incorporated Nov. 29, 1913, and, under the management of C. E. Dawson, a campaign of personal salesmanship of the handsome Chevrolet car was begun. During the season of 1914 there were 125 Chevrolets sold in Wayne county. Dec. 1, 1914, the Monroe Sales Company was taken over by the Chevrolet Company and made the Detroit branch house, with Mr. Dawson remaining as manager.

Last year the Chevrolet Company built 8,500 cars; this year the production is scheduled for 10,000. During the past year the company added considerably more factory space to take care of the increased production. A sheet metal plant in which all the metal for the making of bodies, fenders, gasoline tanks and under pans, was added, also enameling ovens for baking the enamel on the various parts. The Monroe Sales Company, the Detroit house, increased the capacity of the sales rooms at 815 Woodward avenue several times during the year, and added a garage in the rear. The sales force was increased 200 per cent and more salesmen are to be added this spring.

The Chevrolet Motor Company was incorporated in Michigan Nov. 3, 1911, with a capital of $2,500,000. The officers are: President, C. M. Begole; Vice-President, W. C. Durand, in charge of the eastern factories of the company; Vice-President and General Manager, A. B. C. Hardy, in charge of the factories at Flint, Mich.; Secretary, Curtis R. Hathaway; Treasurer, W. S. Ballenger; Sales Manager, L. D. Haas.

The parent plant of the Chevrolet is located in Flint, from which point the western trade is

C. E. DAWSON.
Manager Detroit Branch.

handled. The eastern and export trade is taken care of from a large plant in New York city, located at Fifty-seventh street and Eleventh avenue. Another large plant was recently added by the purchase of a property in Tarrytown, N. Y. This factory is being utilized to turn out the special orders for coupes, limousines and racers. The company started with 250 employes and now has on its payroll 2,300 men. The force is to be increased early this year. The company entered several racing contests and hill climbing events the past year, winning practically every event. At Brighton Beach early in the summer the Chevrolet racers took the first and second events.

The net assets of the company are $1,935,-434.04. Bradstreet's, under date of Aug. 14, 1914, places the company's net resources at between $400,000 and $500,000 as a basis for credit. The Chevrolet people have been able to prove the soundness of the finance despite the prophesies and rumors about the solvency of manufacturing concerns in general and automobile companies in particular at the beginning of the European war.

For the season of 1915 the Chevrolet Company is continuing the Royal Mail roadster, the Baby Grand touring car, and the Light Six touring car with practically no radical changes, but with many refinements. The Detroit branch will have at its disposal 175 cars for Wayne county alone.

A feature worthy of note lies in the selling policy which the Chevrolet Company has carried out up to the present time. There has been no active publicity campaign on a large scale, every car being sold upon presentation of its merits, or through the praise and recommendation of users of the Chevrolet. This policy has required the highest class of salesmanship.

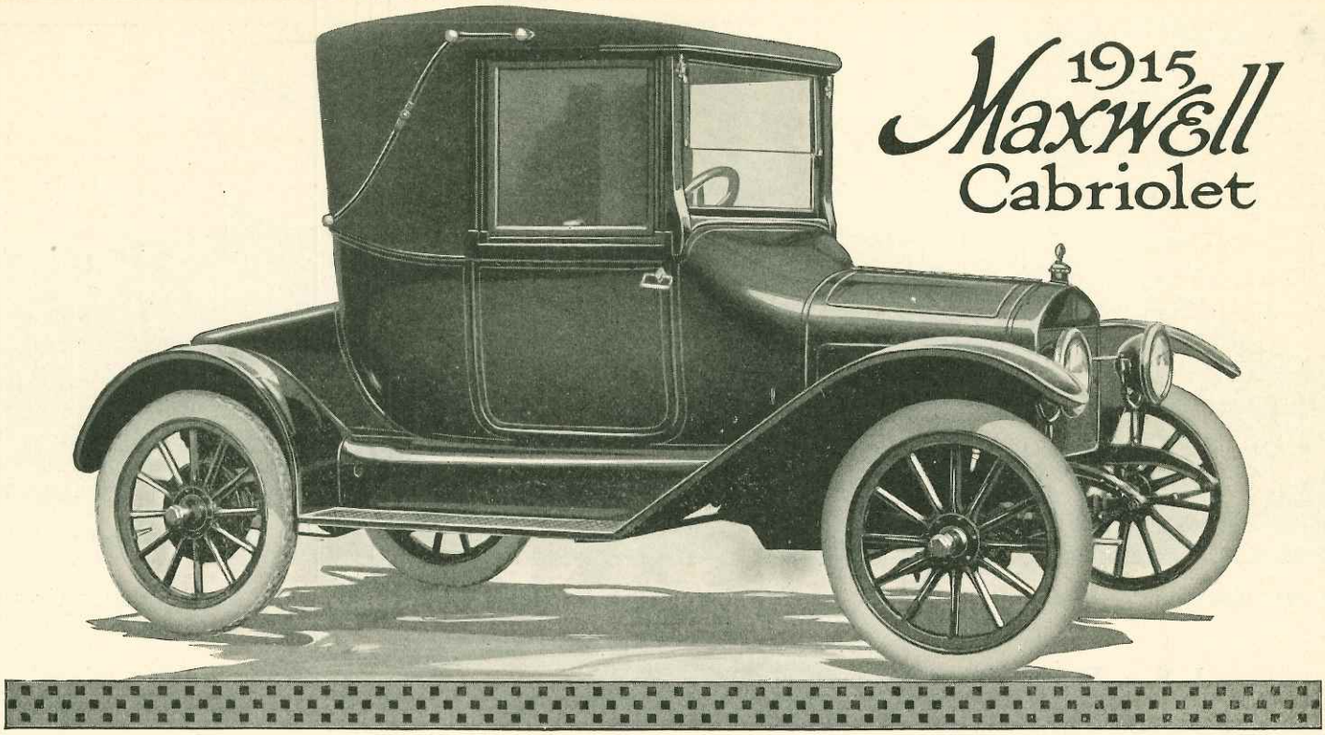
Q. D. ENCLOSED BODY A WINNER.

One of the exhibits which is sure to attract considerable attention at the auto show is the Q. D. enclosed body, an innovation for Ford cars designed to transpose the standard Ford touring car into a luxurious limousine. This body is manufactured by the Detroit Enclosed Body Company, a Michigan corporation of which the principal officers are Messrs. Carl Zoller, Jr., Grover Farnsworth and Gerald Wright, with sales offices in the Ford building.

The Q. D. body has met with considerable success thus far this season and promises to supply a long-felt want by owners of low priced cars for winter comfort in driving. This particular type of enclosed body is sure to be popular, as it gives the owner practically two cars in place of one, and is easily stored in the summer time when not in use.

The Q. D. body which is shown at the Detroit auto show is a standard body in every respect. It is equipped with dome light and roll curtains and everything that goes in standard limousines. It is sold for a low price, considering the finish and equipment.

The route book that tells you how to get out of towns is the one to buy. It is easy enough to get into a town when you come to it, but it is often a difficult task to get out and on to the route that you wish to take to continue your journey.



All You Can Desire in a Cabriolet It is the All-Year-Round Car

YOUR car for every day in the year. In the MAXWELL CABRIOLET you can realize every desirable feature of an automobile. In bad, stormy weather you will find it the home of comfortable, warm and cozy traveling. In bright, sunshiny weather you still have the ideal open car.

THE MAXWELL CABRIOLET is sure to appeal to your sense of dignity and good taste. From the motor to the top it is complete in every detail, and built with MAXWELL thoroughness.

The body and top are built by America's foremost coach builders, Severs & Erdman, whose name on coach work is like "Sterling" on silver. They have combined all the beauty and comfort of the old family coach into a modern automobile, and once you see this Maxwell Cabriolet you will agree with us that it takes its place in the front ranks regardless of what you pay.

Pure streamlines, graceful crown fenders, especially designed for this car, the interior finished in the very best broadcloth, the upholstering deep and pliable, the top of the finest grain leather, and the coach work of such beauty in finish, places this car in the ranks of the highest-priced cars.

The chassis is the regular Maxwell chassis, constructed of the same high quality of materials and skillful workmanship that insures the greatest amount of service and minimum wear. Its low cost of operation actually makes this car the greatest buy today in the automobile line.

Anti-skid tires on the rear wheels come as part of the equipment. Every detail, every desirable feature in equipment is a part of the car. No extras to buy that bring the cost away up. You get your car complete and know just what it is to cost you.

In a word—here is all you can ask in appearance and performance—the right car for this season at a price which absolutely has no comparison.

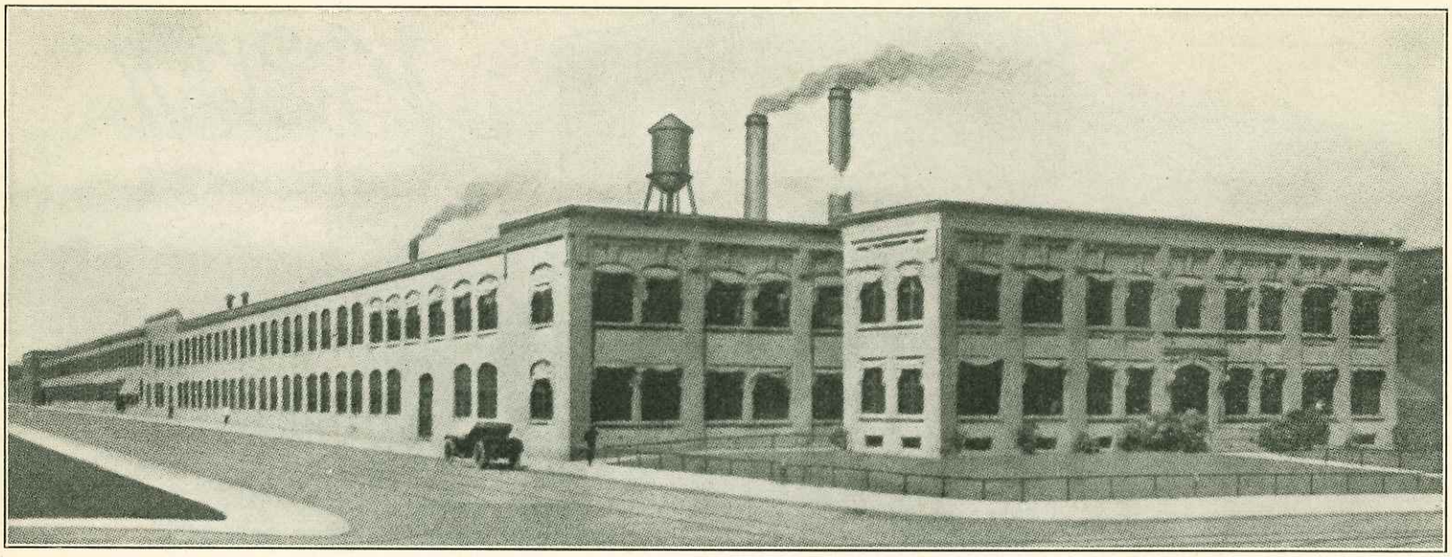
When all this can be yours for so moderate a cost, both in the first instance and in its actual operation, no one can afford to purchase a closed car without inspection of the MAXWELL CABRIOLET. You can indeed pay more for a car, but you cannot secure either more desirable features or better workmanship in a three-passenger closed car.

Come in at your first opportunity and let us show you. If you prefer, write or telephone for literature.

See the Maxwell line at the Detroit Automobile Show, spaces four and five

Maxwell Motor Co., Inc., Detroit, Mich.

Cunningham Auto Co., Local Distributors, Woodward at Warren



ONE OF THE SEVEN FACTORIES OF THE WESTON-MOTT CO., OF FLINT, MICH., THE WORLD'S LARGEST PRODUCER OF AUTOMOBILE AXLES, HUBS AND RIMS.

Automobile Racing Once More in Vogue

The coming season promises to be the greatest in the history of the sport, and rumors are current that quite a few prominent American manufacturers are to take up racing again. Presumably they are desirous of sharing in the glory—for which read advertising, if you wish—to say nothing of the prize money. From present indications, speedway contests will have the call. Beginning with Indianapolis, where the famous 500-mile sweepstakes will be staked on May 29, important meets are to be held at Chicago, Sioux City, Minneapolis and Tacoma, and in all probability the proposed Sheepheads Bay Speedway will be ready before the season is over. Large sums have been offered in prize money, and the field of participants in these various meets promises to be good.

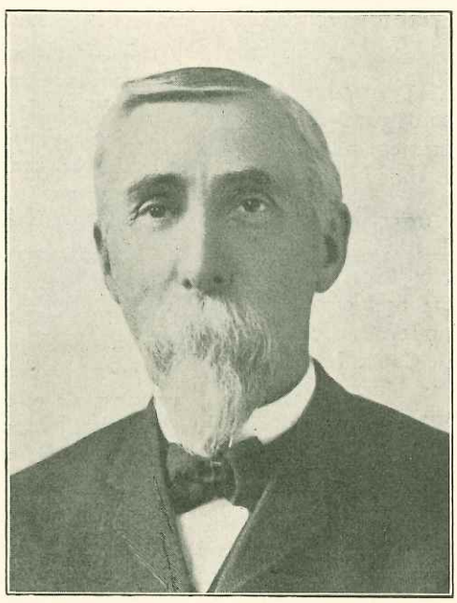
There will be no lessening of road racing, either. California, as usual, will be the scene of the principal road events—San Diego, the Vanderbilt and Grand Prize in San Francisco, and Santa Monica. Elgin will have its usual two-day meeting in August.

The average automobile man will not deny that racing has been beneficial to the automobile industry, and, indeed, there are those who will affirm that it has accomplished more in the way of general development than any other factor. In the east racing is not popular. Whether that is the result of greater progress, indicating that we are taking motoring more as a matter of course and necessity than as a speed playing—as some maintain—or whether it is because we do not recognize the best interests of the cause of the motor car, as others—mainly westerners—assert, may not be argued here. But the fact that the racing element in the ranks of automobiles is by no means inconsiderable, appears, in fact, to be growing every year, and hence must be taken into account.

"I don't care much for speeding," said the manufacturer of a fast car recently, "but none the less I have to do a lot of speeding on the road. Why? Because my car is recognized as the product of a concern that considers speed a fine thing, and as a consequence I cannot afford to let any one pass me."

And by not letting anyone pass him he advertises and sells his car. Which would indicate that regard for high speed is not altogether a dead issue hereabouts. Advanced ideas of motor-car design and construction are responsible for the almost unbelievable speed accomplishments. It is doubtful if the coming year will be productive of much greater speed, but it will most likely show great advance from an efficiency point of view. Smaller motors will predominate, 300 cubic inches piston displacement being the maximum at Indianapolis.

As to the past year of racing one thing stands out most prominently in the review of the 1914 road racing season, and that is the almost unbelievable speed records that were established in several of the more important events. From the very first contest of the year—the Vanderbilt Cup race over the Santa Monica course last February—until the finish flag was waved at the last car running in the Corona race on Thanksgiving day, road records were being constantly smashed.



HENRY M. LELAND, PRESIDENT
Cadillac Motor Company.

It was at the Corona meet that the sensation of the year was provided, when Eddie Pullen, the newly crowned speed king of the road drivers, piloted his Mercer car over 301 miles of roads at an average speed of 87.39 miles an hour, a record never before equalled, and one that is likely to stand for some time to come.

There were eleven road races held during the year under the sanction of the American Automobile Association, and in all of them speed of an unusually high degree was maintained by the leading cars to finish. The historic Vanderbilt Cup race, in its new western setting, was the initial road event of the year. In the Grand Prize of the Automobile Club of America—the only international road race held in this country—Pullen displayed high road-driving ability, and scored the first American car victory in the international classic when he piloted his mount home first with an average of 77.2 miles an hour, a new record. The previous Grand Prize mark was 74.45 miles per hour, made by the late David Bruce-Brown in a giant foreign creation at Savannah in 1911.

Out at Phoenix, Ariz., the automobile race enthusiasts celebrated Independence day with a road race over the "outer loop" course, and of the eight starters Murphy, at the wheel of a Mercer, proved the speediest, covering the 83.7 miles of dangerous roads in 1 hour 40 minutes 54 seconds. The next road races of any importance on the automobile calendar were the annual events at Elgin, Ill. The thousands that gathered around the "Watch City" course were thrilled during the running of both the Chicago Automobile Club trophy event and the contest for the Elgin national trophy with the comet-like speed of the racers. With the ideal roads and climatic conditions of California again being offered him at Corona, on November 26 Pullen uncorked some real speedy and stability and set the world agog when he romped home a winner to the tune of 87.39 miles an hour, a mark never before equalled in competition in this country or abroad. The world's road record previous to Pullen's flight was 78.7 miles per hour, as made by Teddy Tetzlaff in a Fiat over the Santa Monica course in 1912. By his sterling performances on the roads Pullen earned the speed championship of the year.

As to the outlook for the coming year, it may now be said that three of the swiftest speed creations ever turned out by an automobile factory were entered last week from the Vanderbilt Cup and Grand Prize races, to be held at the Panama-Pacific International Exposition on Washington's birthday, February 22 and February 27, respectively. They are the Mercer trio, one of which is to be piloted by Eddie Pullen, winner of the last Grand Prize race, held at Santa Monica, Cal., this year, and winner of the recent Corona race. The Mercer team has had an exceptionally successful year in racing, and the team will strive to defend

For Quality, Service and Economy

—IN—

Drop Forgings,
Heading and Steam Hammer Forgings

GET IN TOUCH WITH

H. B. Kendal, 56 Cadillac Square

DETROIT REPRESENTATIVE OF

The Champion Machine & Forging Co.
Cleveland, Ohio

Packard

THE GOVERNMENT INSISTS that railroads maintain fair and equal rates for all. Why should not manufacturers also have the right to maintain their prices?

—Henry B. Joy

PACKARD MOTOR CAR COMPANY

Lincoln Highway Contributor
Licensed Under Kardo Patents

Ask the man who owns one

Time to Transfer

Now its the time to order your new blank books and records for the new year. We carry a complete line of loose leaf goods, systems and filing devices.

Transfer Cases and Indexes for All Makes of Files.

Our New Catalog Just Off the Press, Will Be Cheerfully Sent on Request.

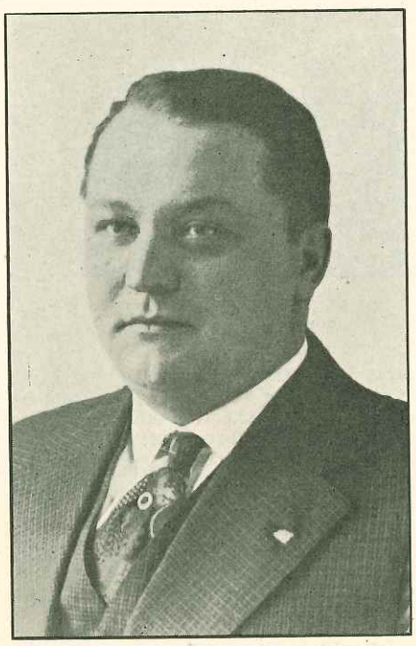
Hilton, Hart & Garrett Co.
The Business Man's Department Store
193-195 E. Jefferson Ave.,
Detroit, Mich.
Phone Main 4380.

the gold cup, as well as win the famous silver trophy in the Vanderbilt. Pullen's teammates have not yet been announced by the Mercer Company.

Another trio of entries recently made which insures some great competition is the Maxwell team. The veteran Barney Oldfield will head this squad, Billy Carlson, the Pacific Coast crack, having one of the others. Prior to the present year Oldfield had never enjoyed much luck in road races, but his recent victory in the Los Angeles-Phoenix desert road race broke his streak of bad luck, and Barney is out to prove that he can be as much of a star in road racing as in his old game of mile-track work. Earl Cooper, who ranks second to De Palma in the number of road races won, will be at the wheel of a Stutz, his teammate being Gil Anderson. The Stutz will be in both big races. De Palma, who has more than the usual incentive to enter the Vanderbilt Cup this season, has not yet made his entry, but is preparing for the event. He has won the famous silver trophy twice, and a third victory would make it his permanent property, and thereby upset the history of the Vanderbilt Cup.

One of the most pertinent facts connected with the last year of racing has been the development of the interest in contests on specially constructed motor speedways, evidenced by the success that attended the annual running of the 500-mile race at Indianapolis, as well as the initial meets at the Tacoma and Sioux City courses. Al these events were well patronized with entries and attendance, which augurs well for the success of the speedways proposed for New York, Chicago, Detroit, Phila delphia, and the Twin Cities within the next season. The 500-mile race at Indianapolis was the most successful of the series of "five-century" grinds held at that course, more than 100,000 spectators watching the French drivers and cars swamp the American contingent. The race itself was a success, although the thrills that have marked previous similar events were absent. But the speed was present, and the success of the further limitation of engine sizes in contests was assured.

"There were not as many road and speedway races held this year as there were in 1913, respite the revival of the Vanderbilt and Grand Prize contests, for the summary of 1914 events shows that sixteen road and speedway contests, as compared with nineteen in 1913," says Jerome T. Shaw, in the Horesless Age. "The far west and middle west again were the scenes of all the races, the east being entirely neglected, except for mediocre track meets. The nearest approach to an eastern race were the events held at Elgin. San Diego was absent from this year's calendar, as were the Los Angeles-Sacramento race, the Albuquerque-Santa Fe and Carson City-Reno races, while Corona, instead of holding three events, as was the case last year, promoted only a free-for-all this season. Merced, Visalia, 'Outer Loop' Prescott, and the Taft races, along with the Vanderbilt and Grand Prize, were the additions to the 1914 schedule. Tacoma joined the



H. E. MATTHEWS, SECRETARY
Jackson Automobile Co., Jackson.

speedway class during the year, and Sioux City also opened its new speedway."

New heroes appeared among drivers, too. Last year Earl Cooper, a Pacific Coast driver, established a record in road races that will probably stand for some time to come, when from six starts he was returned a winner five times, and took down second prize in his other race. But the summary of this year's racing indicates that Cooper either experienced a decided reversal of form, for out of six starts the former champion won once, was third on another occasion, and did not finish one, two or three in his other four starts.

The performances of Ralph de Palma and his Mercedes mounts in the road races of the past season certainly stand out more prominently than the showing of any other driver. From five starts the genial Ralph piloted his Mercedes over the line a winner on three occasions, at Santa Monica in scoring his second victory in the Vanderbilt Cup race, and twice at Elgin. In all of these races he made new records, his average being above 73.5 miles an hour. De Palma's two other starts were in the Grand Prize at Santa Monica and in the recent Corona race, in both of which events he drove home to fourth money. This showing earned De Palma the road championship

of 1914. De Palma confined his operations of the season to road and track work.

Eddie Pullen was the only other driver to score more than one road victory during the season. The Mercer pilot won two races, and in both of these he made remarkably fast time. Pullen, who was formerly second man in the Mercer cars handled by Hughie Hughes, made his first appearance as a road-race driver in 1912, and marked his entrance with a display of clever driving. In the Vanderbilt Cup this year he set the pace from the second to the thirteenth lap, only to be eliminated when his car left the course at Death Turn on the Santa Monica course. Two days later Pullen had his car ready for the Grand Prize, when he won in easy fashion from fourteen other starters, and scored America's first victory in the international races for this trophy. Pullen's other victory on the road was in the Thanksgiving Day Corona race, when he won with an average of 87.89 miles an hour. In the Elgin National, Pullen finished second to De Palma. He was unplaced four times during the season, in the C. A. C. Trophy race at Elgin, the Vanderbilt Cup, Potlatch Trophy, and Montamarathon Trophy events. He also acted as relief driver to Bragg and Wishart in the 500-mile race.

Resume of Records on Speedways During 1914

The automobile racing season of 1914 has been most conspicuous and the official list of records, established last year, and issued by the contest board of the American Automobile Association shows no new speedway records for all distances from 20 to 500 miles established last Memorial day. The most remarkable speed showing of the year was naturally Eddie Pullen's average of 87.86 miles an hour, when he won the 300-mile road race at Corona. According to the records of the year Ralph DePalma, with three firsts and two fourths in five starts, was the champion of the road drivers. Pullen won two firsts and a second in five starts. Barney Oldfield, the veteran, and now known as the "master driver," gained one first, two seconds, one third and one fourth place in six stops.

G. E. Willems, recently appointed foreign representative of Dodge Brothers, is en route to Central and South America, with a view to developing an export trade with these countries.. He will spend two or three months in the southern half of the hemisphere. "American motor car makers," said Mr. Willems, "who devote their efforts to the manufacture of medium-priced cars, have succeeded in turning out models that should favorably appeal to the buyer in Latin countries. A car may have a powerful and efficient motor, but the South American purchaser demands in addition, pleasing lines of the streamline type."

Good roads increase land values, and A. R. Pardington, vice-president of the Lincoln Highway Association, believes this highway has added millions of dollars to the land value along the route.

It would seem, from all reports, that the Stutz car manufacturers at Indianapolis have lost Barney Oldfield, and that the Maxwell Motor Company has obtained the services of the master driver of the world, leaving his old team-mates, Earl Cooper and Gil Anderson, to bear the Stutz colors. Barney jumped to the Maxwell at Corona, and Ray Harroun recently said in Chicago that Oldfield would continue to drive the Maxwell, appearing in the Vanderbilt and Grand Prize races. Cooper and Gil Anderson will also drive in these events, and will be after the scalp of Oldfield, right from the jump.

The Motor Truck Club of America, which held its last yearly meeting in Detroit, and which is now four years old, with 402 members, has just held its annual meeting and elected new officers for 1915.

The question of communication between the driver and mechanic on a racing car, traveling from 80 to 100 miles or more per hour has always been a problem, and Eddie Rickenbacher, who drove at the state fair race meet of the last several years, solved the difficulty in the Corona road race of Thanksgiving. He made a combination headguard, goggles, face mask and speaking tube, which enabled him to talk to his mechanic at will, no matter how fast they were traveling.

It is evidently not the intention of the American Automobile Association contest board to allow the state fairs and other fairs of America to withdraw from A. A. A. control, and it is reported that Chairman Robert Kennerdell of the contest board, will attend the meeting of the committee appointed by the association of fairs. This committee of three will meet in Oklahoma some time in January.

One million gallons of gasoline are used in Detroit every month by private owners and manufacturers, who are operating 36,000 pleasure cars, 4,000 trucks and delivery cars, 50 dry cleaning plants and 750 other establishments.

The utmost activity is promised during 1915, in connection with the Detroit to Toledo road, via Monroe, and the Toledo Automobile Club with the Toledo Commerce Club, the Monroe

CLAUDE BRIGGS, PRESIDENT
Briggs-Detroiter Co.

Business Men's Club, and the Detroit Board of Commerce is hard at work upon the project. It is believed that the two cities will be connected by a good, well-constructed road, all the way, in 1915.

Two young physicians of Louisville, Drs. C. K. Berle and H. R. Kettig, have sent the Ford Motor Company an interesting account of a tour made in October in a Ford touring car. From Louisville they skirted the western shore of Lake Michigan, to the Straits of Mackinaw, and toured back along the eastern shore. They covered in all about 2,000 miles. The car was esuipped with a sleeping and camping outfit generally, and the entire trip was made without sleeping indoors. The two young physicians now plan a like trip to the Panama-Pacific Exposition.

Racing drivers from all over America will make hurried trips to the Pacific coast, shortly after the holidays, to start the national circuit racing of 1915 at San Diego, Cal., January 9.

The purses to be offered for automobile contests during the season of 1915, will total close to $500,000. The $500,000 mark will be reached, providing all of the speedways that are proposed materialize, and offer such cash prizes as will be highly probable.

On the presumption that the Detroit, Chicago, Minneapolis and New York speedways are constructed, in accordance with the present well-laid plans, the circuit would include the pro-

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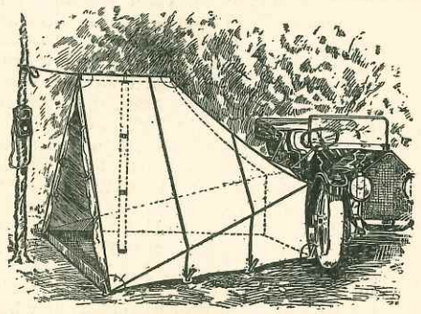

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posed Santa Monica race with $10,000, the Vanderbilt and Grand Prize races at the Panama-Pacific Exposition with $20,000 in prizes, the Oklahoma City road race May 1 with $10,000, the Indianapolis 500-mile race May 29 with $50,000, the Galesburg dirt track meet June 9 with $5,000, the Chicago speedway 500-mile race June 19 with $50,000, the Elgin road races in August with $10,000, and $50,000 purses for the New York, Minneapolis and Detroit speedway contests. There is also a speedway at Omaha, which is completed, but which has not asked for a definite date, and it is stated that one meet at this track will pay $25,000 in cash prizes, while Sioux City, June 25, will also have $25,000.

The people of the Cumberland mountains of Kentucky are making great efforts to bring about the construction of a highway through southeastern Kentucky to connect with the southern highway, leading from Cumberland Gap to Virginia, Tennessee, North Carolina and the southeastern states. The preliminary work has been accomplished, and "Boone Way," from Crab Orchard to Cumberland Gap seems certain, according to R. E. Woods, director of the Kentucky Good Roads Association.

Ralph DePalma, the road racing champion, who is now making his temporary headquarters in Detroit, while personally designing a new body for his Mercedes racing car at the Packard plant, has given his opinion unqualifiedly to the officials of the Speedway Country Club with regard to the coming Detroit speedway. DePalma does not believe that a speedway should be banked too steeply, as he says that on the steeply banked track it is a case of the fastest car getting out in front, and then holding the lead until a tire blows up or an accident happens, when someone else takes the lead.

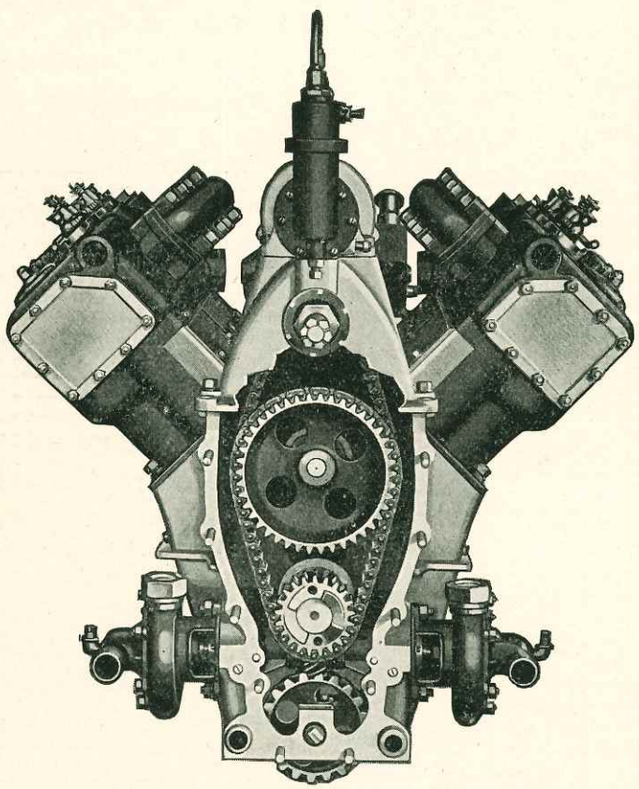
"I favor a track with hardly more banking than the Indianapolis speedway, but of a different shape," said Mr. DePalma. "On such a course it is a question of the ability of the driver to handle his car, and a contest is much more interesting than a runaway.

"Detroit is the logical home for America's greatest speedway, and I sincerely hope Detroit will have the greatest racing course ever built."

Cadillac "Eight" an An Auto Show Feature

With the display of the Eight-Cylinder Cadillac at the Detroit Show, it makes its first bow to the people of this city at a public automobile exhibition.

In the light of past developments it seems only logical that the Cadillac should be first in the American field with an eight-cylinder car, as a glance at motor car history will show.



CADILLAC EIGHT-CYLINDER ENGINE

For a year the Cadillac was the only car to carry an electric starting and lighting system—a feature that has become an important part of the regular equipment of almost every car.

As the Cadillac statement puts it:

"This Company has never relaxed its pursuit of that power principle which would prove to be ultimate and final.

"We sought the medium by which the Cadillac would be endowed, not with approximate freedom from gear shifting, or approximate hill-climbing ability on high, or approximately swift acceleration, but with the highest possible form of these three characteristics.

"The Cadillac Company has given serious consideration to every reputable type of motor—endeavoring to scrutinize with scientific impartiality the virtues and the limitations of each and every one alike.

"Building and experimenting in turn, with every type from the single cylinder, we have been carried forward to the highest form of frequent impulse motor—the V-type eight-cylinder.

"The principle advantage of the eight-cylinder engine is, of course, its continuous torque, and continuous uniform generation of power. There is no pause or lapse between power impulses, of which there are eight in each complete cycle of the engine, four to every revolution of the crankshaft, or one every quarter turn. The firing alternates from side to side. The continuous torque produces an almost utter ab-

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sence of vibration, at both high and low speeds."

W. G. Aston, writing of the V-type of eight-cylinder motor in the Autocar Imperial Year Book, London, classifies its advantages under four heads, viz: size, weight, torque and cooling.

Under the head of size he comments on the shortness of the construction which not only reduces periodic vibrations in the crakshaft, but affords more space for body work on a chassis of standard length. No extraordinary length of inlet piping is required, as the V-form cylinders lend themselves very readily to a piping arrangement that enables every cylinder to receive a practically uniform charge of gas.

In the matter of weight, the shortness of the V type eight again figures, Mr. Aston pointing out the reduction in the length of crank case, the lighter crankshaft and fly wheel, short camshaft and lighter reciprocating parts because of the comparatively smaller size of the cylinder on a given power basis.

As to the torque, he shows by illustration that the torque of the eight is more uniform and that additional cylinders could do no more than increase the power.

The author points out that, in the cooling system, each block of cylinders is treated as a unit, and the water circulation has no tendency to form pockets around the valves.

The cylinder dimensions of the new Cadillac engine are comparatively small—3⅛ inches bore and 5⅛ inches stroke—yet in repeated tests by dynamometer, an excess of 60 horsepower has been registered.

The cylinders are cast in two blocks of four cylinders each, with water jackets, combustion chambers and intake manifold integral. The cylinder blocks are mounted on the crank case at an angle of 90 degrees to each other, from whence the designation, "V-type."

The cylinders are of the L head type, with all valves on the same side of the cylinder blocks.

The temperature of the water is regulated by automatic thermostats.

There is but one crankshaft, the connecting rods of the cylinders opposite each other being jointly attached. One camshaft with eight cams is employed positioned directly above the crankshaft, driven by a silent chain from the crankshaft and operating the valves through a series of rocker arms provided with hardened steel rollers.

The crankshaft is 1⅞ inches in diameter, of special chrome nickel alloy steel, supported by reinforced bronze, babbit lined bearings of liberal proportions. Its length is but 26 1/16 inches between the outer ends of the forward and rear bearings, thus overcoming the periodic vibration or thrashing almost sure to result where a long crankshaft is used.

One of the factors which contributes materially to the smoothness and absence of vibration in this engine, aside from its fundamental principle, is the lightness of the reciprocating parts.

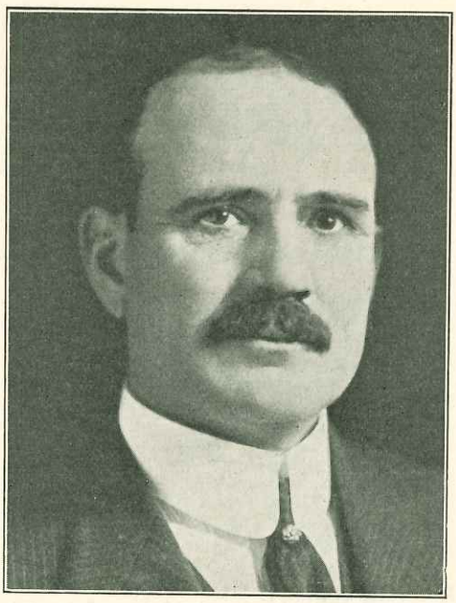
A multiple disc clutch is employed and the motor and transmission are mounted as a unit, the two rear points being bolted to the frame and the forward point taken care of by a ball and socket joint.

Details of the car include left drive and center location of the gear change and hand brake levers, wide doors, lighting and ignition switches located conveniently on the cowl board and a pedal button in the floor for bringing the electric device into action.

The advent of the new car naturally has created extraordinary excitement all over the country and the feeling in the trade echoes in a large measure the expression of W. C. Leland, General Manager of the Cadillac Company, who is quoted as saying:

"We believe the eight-cylinder is destined to change completely the current of motor car design and manufacture."

This is supplemented by a statement from Sales Manager E. C. Howard, who says that reports from every city and town of consequence in the country indicate an advance sale so unusual that it will be impossible for the Cadillac Company, even with an enlarged production, to satisfy the demand during the first twelve months.



C. W. NASH, President.
General Motors Company, Flint.

The Dodge Mystery Car at its First Show

While Dodge Brothers are not exhibiting their "mystery car of 1914" at the Detroit show, it attracted a great deal of attention at the New York show at the beginning of the month.

The show marked the first appearance of the two-passenger roadster which, with the five-passenger touring car, will complete Dodge Brothers' line for the coming year. Adhering to the standard set by the touring car, the new roadster is a two-passenger car of streamline design and carries similar equipment throughout. It will sell for the same price as the touring car, $785. A roomy compartment in the rear of the roadster affords space for a good sized suitcase and other paraphernalia needed on long runs.

Since the first touring car model was placed on exhibition over a month ago, the equipment and finish of Dodge Brothers' product have received much praise from dealers and motorists of long experience. The equipment is most unusual for a car in the popular priced field. Briefly summed up, it includes real leather upholstery, chrome vanadium steel springs of the self-lubricating type, Timken bearings throughout, chrome vanadium steel gears, one-man top, northeast electric starting and lighting system, and, it is said, the almost exclusive use of drop forgings in the manufacture of the car. The car is a roomy five-passenger machine and has a wheelbase of 110 inches. Non-skid tires are furnished on the rear wheels.

In designing a car of light weight, Dodge Brothers have made use of their experience gained through exhaustive tests carried on with chrome vanadium steel in the days when they were engaged in manufacturing automobile parts. Wherever the employment of chrome vanadium steel would give strength without excessive weight, its use was accepted. As a result, such important parts as the crankshaft, valve stems and springs, connecting rods and transmission gears are all manufactured from this high-grade material.

Drop forgings, another important item in the

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making of the new car, are also employed to a degree unusual in the moderate priced car. Dodge Brothers are in a position to do this, because they have a forge shop in which there are 45 steam hammers. These forgings are much stronger than castings of similar shape would be, and at the same time are lighter. Not every car maker, it is explained, can use these forged parts, because he has not the equipment to make them. If he bought them, the cost would run up, and that is often prohibitive to the small production maker. The enormous outlay for such equipment as Dodge Brothers have for forging work alone could not be made to pay for itself for a small output.

Among other improvements over standard automobile practice, the Dodge Brothers have devised a method whereby none of the transmission gears is in mesh when the car is running in direct drive. In the ordinary gearset, the gears are constantly rotating. But in the new Dodge Bros. transmission, the gear on the mainshaft is slid back on the squared end of that shaft and out of mesh with the counter shaft gear. As soon as the direct drive connection is made, the counter shaft is inoperative and all gears are at rest. The advantages of this are obvious. The unnecessary wear on the countershaft bearings is eliminated, to say nothing of the silence of the transmission when the drive is direct.

Overloading Cause of Truck Tire Troubles

"Overloading and overspeeding trucks are prime causes of premature solid tire breakdowns—there is increased expense for the truck user, 'time out' for frequent renewals, controversies in regard to adjustments, premature discard of tires and dissatisfaction with trucks." S. V. Norton, manager of truck tire sales for the B. F. Goodrich Co., thus sums up his paper on "The Causes and Effects of Overloading and Overspeeding in the Truck Tire Field," read at the convention of The Motor Truck Club of America.

"The immediate effect of overloading and overspeeding," said Mr. Norton, "is premature tire destruction due to a greater liability to cuts, base separation from excess loads, friction and strain of skidding, weakening of a dual tire if the mate is injured, and overheating, with consequent disintegration of the rubber. Truck owners naturally desire to get as much as possible out of their trucks and they may be led to overspeed them. If a truck owner wants to make 'intensive deliveries' he must pay for overspeeding in his tire bills. However, the trucks are often overspeeded without the owner's knowledge owing to the driver's desire to make a good showing either with the loaded truck or by returning from a trip in quick time. Often drivers speed merely for the sake of the spare time gained after the load is delivered.

"Overspeeding as a rule is entirely unnecessary, as it need not be due to the absence of a governor or to the power of the truck. Down grades, easy riding, lack of obstacles, and extra speed in car trucks all lead drivers to overspeed.

"The causes of overloading are usually due to improper or disproportioned tire equipment or to excessive or poorly arranged loads. Trucks are often overloaded owing to the ignorance of the owner as to what his trucks can safely carry. Loads may be placed too far back or forward on the body of the truck, even though the loads are within the limits of the tire schedule of carrying capacities.

"Tire equipment may be disproportioned; tires may be too large on one axle and too small on the other. Or the body may be too large for the tires. A large body may be allowed to pass unquestioned by a truck agent who is anxious to clinch a sale. This danger may not have been fully explained by the truck salesman when the truck was purchased, or the owner may be too occupied to know

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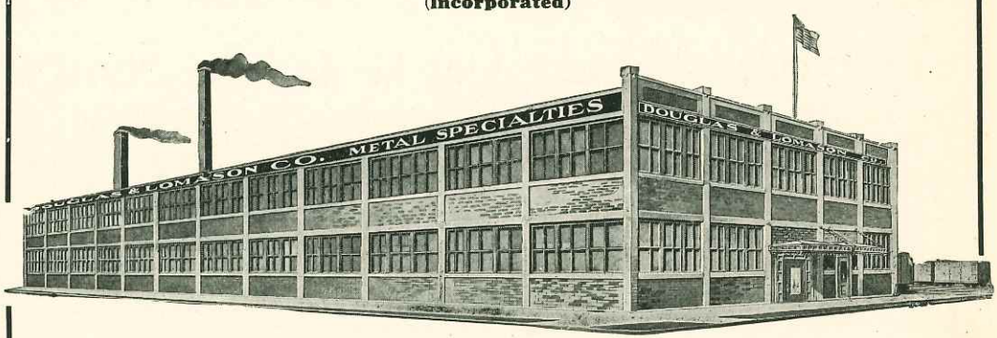

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what is going on. The ignorance or indifference of the driver may also be causes of overloaded trucks.

"One effect of the widespread abuse of tires through overspeeding and overloading is a stimulation for better tires to meet the present conditions. Tire makers are usually the 'goats' when a truck user becomes dissatisfied with his tires. The defects caused by overloading or overspeeding are usually brought home to the tire manufacturer. However, tire makers are meeting conditions by educating all concerned in the proper care of tires, by adopting more rational guarantees, and by improving the tires themselves to meet every possible condition of service."

Weston-Mott's Progress in Michigan

The history of the Weston-Mott Company dates back to the year 1884 during the early days of the safety bicycle. At that time the industry consisted of the manufacture of bicycle hubs, rims and wire spokes. The decline of the bicycle business made it necessary to branch out into another line and wire wheels and naked axles for buggies and runabouts were brought out. The output was further increased by the manufacture of jinricksha wheels for Asia and Africa, invalid chairs, sulky, light agricultural implement and push cart wheels, in fact the development of all kinds of high grade wire wheels.

In 1898 the factory at Utica, N. Y., was built and the company was right in line to furnish wire wheels for automobiles, which came very soon thereafter in quantities very large for those days and the factory capacity had to be increased. Then, almost without warning, the bottom fell out of the wire wheel industry and it was necessary to switch to the making of hubs and rims for artillery wheels as now used on motor cars, and as the automobile makers insisted upon purchasing their hubs where they bought their axles, it was quietly recognized that the company must have axles.

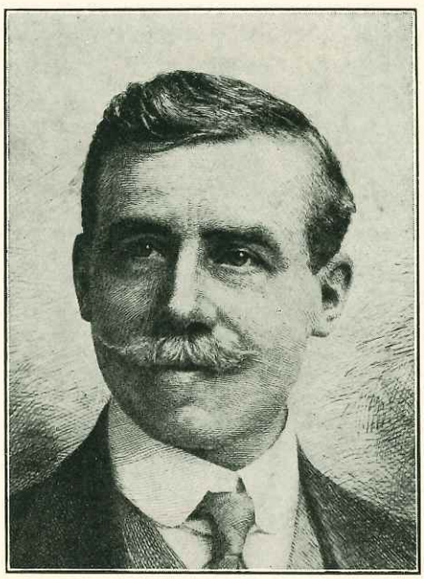
In 1905 the company was approached regarding the establishment of a branch factory in Michigan, and as the limit of the Utica plant had been reached it was decided to leave it altogether and build a new factory in Flint of very latest construction where all requirements of manufacturing at lowest possible cost could be met. In 1907 the factory of 60,000 feet of floor space was opened and before long this was found to be entirely too small to take care of the increasing business. Since two additions have been made to the original No. 1 plant, which are called Nos. 1, 2 and 3 plants, with a total of 180,000 square feet of floor space, and at which plant are manufactured only rear axles. No. 4 plant has since been completed and consists of three floors with 90,000 square feet of floor space. In this plant are manufactured only hubs and rims. No. 5 plant was then built and is used exclusively for the manufacture of front axles. The Weston-Mott modern heat-treating plant was recently built and is the most up-to-date building of its kind in the country. It is built entirely of steel and concrete and has 20,000 feet of space, making a total of 380,000 square feet.

In 1909 25,000 sets of axles, hubs and rims were built, and this year more than 75,0000 sets will be shipped. The pay roll of the company is very near to $2,000,000 per year. The line of manufacture now is confined to automobile axles, hubs and rims. In axles the I-Beam predominates, but the manufacture of the tubular type is continued on a small scale. The rear axles are of bevel and chain type and both ball and roller bearings are used. In the evolution of the business trade requirements have grown very strict as to quality, design and noise, and the company has developed a large engineering department with fully equipped chemical and physical laboratories, master mechanics, experimental, cost and accounting departments to meet all conditions, with the result that the Weston-Mott Company stands in the foremost ranks of its line and is the largest producer of automobile axles, hubs and rims in the world.

The officers of the company are: C. S. Mott, President; H. H. Bassett, General Manager; H. J. Mallery, Comptroller; D. K. Moore, Sales Manager; F. A. Bower, Chief Engineer; F. J. Hunt, Purchasing Agent

The following is a list of the customers using the Weston-Mott axles:

Buick Motor Co., W. A. Patterson Co., Olds Motor Co., Oakland Motor Co., Cartercar Co., D. F. Poyer Co., Alma Motor Truck Co., Commerce Motor Co., Durant-Dort Carriage Co., Westcott Motor Co., G. W. Davis Motor Co., Velie Motor Co., Touraine Co., Service Motor Co., Selden Motor Co., Ohio Electric Car Co., Imperial Automobile Co., Kelly Motor Co., Krebe Commercial Car Co., McFarlane Motor Co., Empire Automobile Co., Moline Automobile Co., J. I. Case Co., American-Voiturette Co., Buckeye Manufacturing Co., Allen Motor Co., O. Armleder Co., Henderson Motor Co., Jackson Automobile Co., Luverne Automobile Co., Stegman Motor Co.



ALEXANDER WINTON, PRESIDENT
Winton Motor Car Company, Cleveland.

TAX STAMPS ON DEEDS.

Regulations to govern the placing of stamps on conveyances of real property, in payment of the deficiency tax were issued Jan. 5 by Commissioner of Internal Revenue Osborn. The tax is 50 cents on deeds that amount to more than $100 and less than $500, with 50 cents additional for each $500 or fraction over $500.

Where the consideration is nominal, or $1, the tax must be computed upon the actual value of the property conveyed, liens deducted, and the executor becomes liable for the penalty, if the proper amount of stamps is not affixed.

The commissioner announced that while a register of deeds is not expected to investigate where he suspects violation of the law, he should in such cases notify the proper revenue collector. A quit claim deed is not subject to the tax, nor are oil leases and mining leases which convey no title. Deeds to cover gifts in a family or from an individual to a municipality are not taxable.

The law, it was explaied, does not apply to shipments by parcel post. Street railways are subject to the requirements, when they accept goods for transportation as a part of their regular business.

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Tiling, Fire Place Furnishings, Vacuum Cleaners.

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QUALITY FIRST

Five Hundred Slightly Worn Tires are discarded every month in Detroit, because they are considered worthless on account of a cut through the fabric, or maybe a part of the rubber is torn off.

In the hands of expert men those tires can, at small cost, be repaired so as to wear like new. If you are not intimate with tire repairing we can surprise you by showing you what we can do in

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We Make Good — MICHIGAN VULCANIZING CO. — We Make Good

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200 Guest Rooms

150 With Bath

Absolutely Fireproof

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RATES:
$1.00 Without Bath

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Some very fine two and three room suites, $5.00 to $10 per day.

The Best Moderate Priced A La Carte Caf't in the City

GRINNELL REALTY CO.
Proprietors

H. M. KELLOGG, Manager

GREAT BRITAIN'S COPPER SEIZURES.

That Great Britain has seized approximately 48,000,000 pounds of American copper in transit to European countries since the outbreak of the war appears from records kept by the New York Sun. Of this total England bought 10,017,280 pounds and released 2,464,000 pounds. The fate of the remainder, amounting to over 35,000,000 pounds, still hangs in the balance, the subject of much diplomatic discussion. Its value is over $6,000,000.

The price agreed upon for the early copper seized by Breat Gritain figured to net the producers 12 cents at New York. Payment has been tendered only within the last week, when producers learned that there had been deducted warhouse charges of five shillings on the agreed price of £55 5s. The exporters protested.

On the copper sold at 12 cents a pound producers declare they have suffered a loss, as much if not all of the tonnage involved had been sold at 14 cents a pound.

A recapitulation of the copper, in pounds, detained by Great Britain follows:

Bought by England	10,017,280
Held in British Isles	21,166,960
Held at Gibraltar or Marseilles	14,266,560
Released after detention	2,464,000
Total detained	47,914,800
To be accounted for at prize court or other proceedings	35,433,520

Every American producer suffered to some extent through the actions of Great Britain, as each shipper to foreign markets has had at least one consignment detained. The producers who co-operated in their protests were the American Smelting & Refining Company, American Metal Company, Consolidated Metals Company and United Metals Selling Company. Later Adolph Lewisohn & Sons and Beer, Sondheim & Company are understood to have joined in the protests.

BUSINESS FAILURES IN 1914.

Liabilities in business failures in 1914 are estimated at more than $350,000,000 by both Dun's and Bradstreet's.

Dun's says: "There was a marked expansion in the business mortality in the United States during 1914, commercial failures numbering 18,280 and supplying $357,908,859 of defaulted indebtedness. This contrasts with 16,037 suspensions in the preceding year for $272,672,288, and in both respects the returns compared adversely with all earlier periods. The unusually heavy liabilities, however, were largely due to a comparatively few insolvencies of exceptional size, the financial difficulties of a prominent dry goods house, with its various affiliations, alone accounting for more than one-tenth of the total amount involved."

Bradstreet's says: "The 1914 failure record was an unfavorable one, the poorest in history, in fact, as regards number, while the liabilities of failing traders have only been exceeded twice before since Bradstreet's totals were first compiled. There were 16,759 failures, a total 15 per cent in excess of 1913 and 8 per cent in excess of 1893, the hitherto record year. Liabilities of failing traders in 1914 aggregate $362,235,312, a total 22.7 per cent larger than in 1913, but 5.5 per cent smaller than in 1907 or 1893."

MOVING PICTURES FROM AEROPLANES.

An automatic camera, by which a panoramic picture of the territory over which an aeroplane flies can be taken has just been invented by Capt. Giovanni Fabbri of the aviation corps of the Italian army. Maj. H. Bannerman-Phillips describes it in the Scientific American as a "miniature cinematograph." He says it is so simple and so small that it can be attached to any aeroplane, and "while essentially automatic and continuous in its working when once started it can be stopped at any time and used for occasional single snapshots if so desired. It has a roll of film which winds and unwinds over two bobbins. Along one edge of this film are a series of perforations at stated intervals, and a tooth in the side of the camera presses against the film. When it enters one of these perforations the film is stopped automatically, the shutter released, an exposure takes place and a snapshot of the terrestrial surface underneath at the time is secured. The unrolling of the film is effected by the rotation of a small propeller, driven by the passage through the air of the aeroplane, which rotation is conveyed by a shaft to a chain, which unwinds the film. The shutter is automatically released at intervals by gearing.

A very important point in connection with the photographic records furnished is that each time the shutter is released the faces of the compass and aneroid are photographed at the same time with the view, and are shown in a corner of the film; and the capacity of the latter is equal to recording at a height of 4,000 feet the features of a tract of country 150 miles in length.

There were an even dozen light and small cars displayed at the New York automobile show and these cars differed from those of last year as much as does day differ from night. Prominent among the small cars are the Scripps-Booth, Malcolm and Saxon, of Detroit; Chevrolet and Dort cars, of Flint; Gadabout, of Newark, N. J.; Argo, of Jackson; Grant, of Findlay, and outside the building the Dile and the Kelsey four-wheel motorette.

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Compensation Liability Protection at Actual Cost

Perfect Protection
Unexcelled Service

We Relieve You
From All Detail

What The Employer WANTS

What The Employer SHOULD HAVE

And that is what the Michigan Workmen's Compensation Insurance Co. offers. Mutual insurance furnished by a company authorized by the Michigan State Insurance Department, approved by the Industrial Accident Board, operated without profit and managed by men recognized as among Michigan's most successful business men.

THIS COMPANY WILL RELIEVE YOU OF ALL THE WORRY AND DETAIL OF ACCIDENT CASES.

Michigan Workmen's Compensation Mutual Insurance Co.

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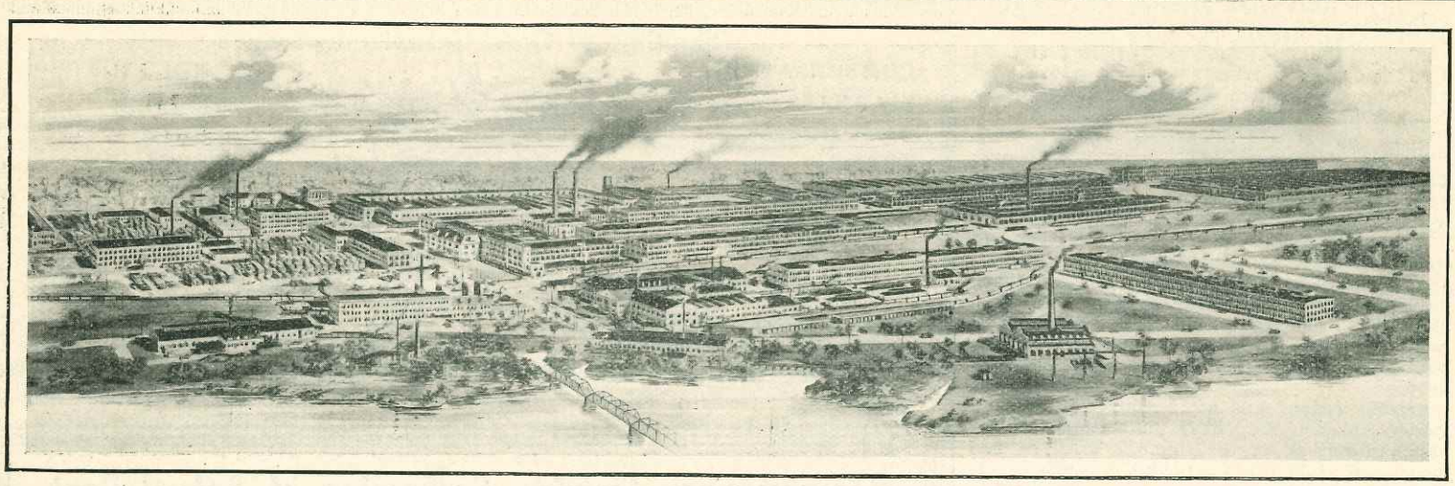


PLANT OF THE BUICK MOTOR CAR CO., FLINT, MICH.

What the Motor Car Has Done for Michigan

The motor car has done more for Michigan than any other individual industry. Statistics will prove that in volume and value the product of Michigan motor industries will equal, if not exceed, all other combined industries.

The development of a market for the automobile has not been confined to any one particular make of motor car but has been a gradual development year by year, and has revolutionized the marketing of vehicles not only in Michigan but throughout the United States. These marvelous results have been accomplished by a broad-gauge business policy dating back perhaps a decade when far-seeing, progressive manufacturers realized the opportunity ahead and laid the foundations for a business that is growing day by day—a business that creates a healthy, sound condition in every community that it draws from—a business that exceeds in volume and beneficial effect any business the world has ever known.

The motor manufacturers have studied the possibilities of broadening their business from every angle, and the various view points brought to bear here succeeded in developing a varied demand for cars ranging in price from $500 to $5,000. Many of these manufacturers have deemed it advisable to specialize on one type of car while others have steered a middle course and designed a cart that would sell to the great commonwealth, and has supplied them with models of various passenger capacities at suitable prices.

The study of the development of this business has been an interesting and a marvelous one. In an interview recently with Mr. R. H. Collins, sales manager of the Buick Motor Company, of Flint, several very startling and impressive facts were revealed. These facts can perhaps best be set forth in his own words.

"We believe the automobile has done more to develop and improve the moral and social conditions of the United States than any one other thing. Believing this we started out to prove the fact to the people by spreading broadcast the results of research work made throughout the States and territories of the Union. We brought information to bear from every available source—from every walk in life where the motor car entered as a factor either as a business necessity or a means of pleasure and recreation.

"Having secured the desired data we published it in the columns of the Buick Bulletin (a magazine of interest to all motorists) to prove the value of the motor car to every family, to every merchant, manufacturer, professional man, farmer and artisan.

"By means of special articles we have shown that the farmers of the United States have made more progress in the last five years than in any other 20 years of the nation's history, and the reason can be told in one word—'automobile.' We can prove that every time an automobile is sold the doctors lose five patients. That does not mean that the increase in automobiles will do away with the necessity of doctors, because there is a patient born every second—which is considerably faster than automobiles are sold.

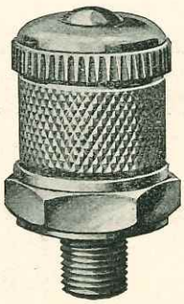
"It does mean that the general standard of health among those who use automobiles is steadily rising. It means that a great many men and women are getting more fresh air and exercise. We mean directly and indirectly the automobile is proving a factor of ever-increasing importance in bettering and making more efficient, from a health standpoint, the lives of the untold thousands who use this

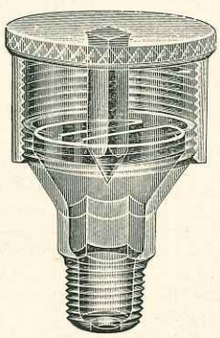
TRADE WINKLEY MARK

COMPLETE LINE OF OIL HOLE COVERS

SPRING SHACKLE BOLTS and GREASE CUPS

We Have Several Styles of Bolt Lubricators





Catalogue and Prices on Request

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Also CANADIAN WINKLEY CO., Ltd., Windsor, Ont.

SOLVAY

Coke

EGG
CHESTNUT
PEA

Pocahontas Coal

Lump
Egg
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FUEL PRODUCTS

—THE NAME GUARANTEES THE HIGHEST QUALITY—

Semet-Solvay Co. and Solvay Collieries Co.

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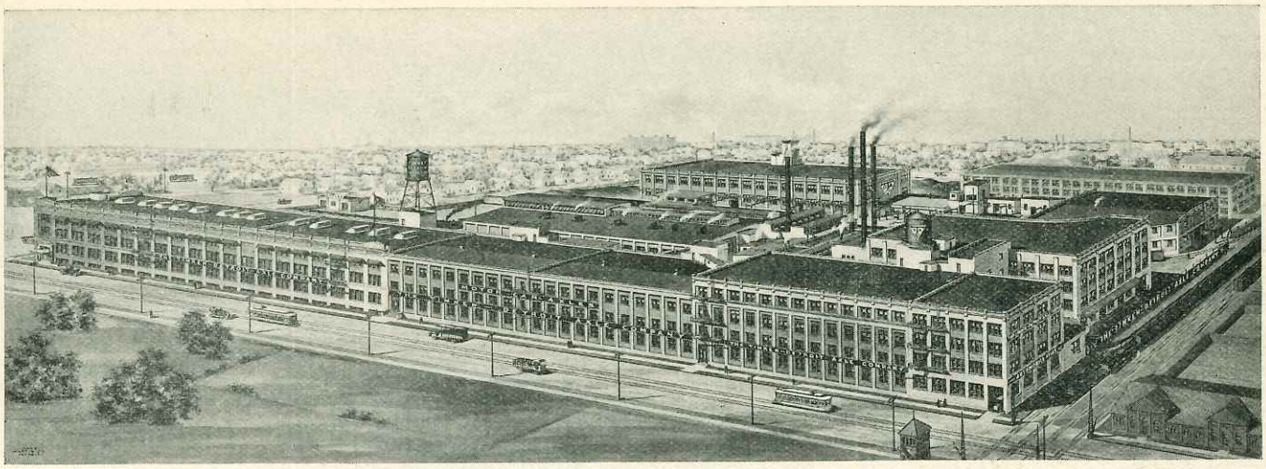

DETROIT FACTORY OF TIMKEN AXLE COMPANY.

greatest of all additions to improved machinery. A prominent doctor in Detroit recently stated 'The automobile adds ten years to the life of every man who uses it consistently. This does not necessarily mean that he will live ten years longer than he ordinarily would, but that he lives ten years better. In other words, the ten years are added to the middle of his life rather than to the end of it. That period that we designate as his 'prime' is extended through his use of the automobile. To business men, especially, and those of sedentary occupations, the automobile has proven a boon, the value of which is beyond estimation. The benefit to those men has been both direct and indirect. Fortunately, too, nearly every man who owns an automobile shares its use, and therefore its benefits, with some of his less fortunate fellows. As a preventive of diseases I know of nothing better than the automobile."

"Just think of this as an indorsement and realize the far-reaching effect an industry of this character is playing on conserving the health of the nation.

"The spreading of these truths and proving conclusively that the distribution of motor cars is a benefit rather than a drain on any community, has developed our business to such an extent that we have increased our output for 1915 just 33 1-3 per cent over what it was in 1914. The Buick Motor Company this season will manufacture and sell over 42,000 cars.

"In order to take care of this immense increase in our business it has been necessary for us to build new factories, make large additions to the various departments entering into the manufacture of our car, and we are now giving nine hours work a day to the largest force of men ever employed by the Buick Motor Company.

"Aside from a business and health-giving standpoint, let us consider the motor car from the moral standpoint and in order to make a specific application, let us take it from the standpoint of the farmer—what the motor car has done for him. Let us compare the family of the farmer who owns a motor car with his old-fashioned brother who is still driving to town behind his horses either before or after they put in a hard day's work in the field. Let us check these two men up side by side, both in appearance and in their value to the United States, as progressive citizens. We will start with the old-fashioned farmer.

"Standing on the main street in any country town, we will see them coming into town to do their shopping. Some of the farmers drive in behind horses hitched to buggies and wagons. The others—in some communities more than half of the total number—ride to town in automobiles. Watching them as they dismount it will be observed that the ones who drive horses, for the most part, still measure up to the old idea of what a farmer should be. In many cases there are the old familiar overalls, tucked into boot tops or flapping loosely over rusty shoes. There are the old hickory shirts and the slouch hats, grimy with the wear of many seasons. The wives and daughters, if they are along, are still wearing calico and gingham dresses, topped off with millinery that was in style ten years ago or longer. These farmers bear every earmark of the old order. They belong to a bygone age.

"Now take the men, also farmers, owners of the same kind of farms as their old-fashioned brothers; possessed of no greater wealth or opportunity, who drive to town in automobiles.

"It will be noticed, when they step from their cars, that underneath their dusters (if it is summertime) they wear clothes of a modern cut—even tailor-made). About their necks are white collars and good neckties, set off, in many instances, by neat stickpins. Their shoes are polished and their hats are this season's models, rather than models that were in vogue back in the nineties. Their wives, it will be observed, have been transformed. From gingham and calico dresses they have graduated to modish suits and gowns, cut not only in style, but with taste equal to that possessed by their sisters in the cities. Their very appearance radiates a keener intelligence and a greater joy

EGLE BROTHERS MFG. CO.
Manufacturers of
Special Shape High Grade FIRE BRICK
Quotations submitted on request
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150 Rooms--50 Rooms with Private Bath--Rates $1 to $2.50--European Plan
Hot and Cold Running Water and Telephone in All Rooms
Restaurant and Cafe in Connection. Prices Moderate.
GEORGE FULWELL, Proprietor.

Both Motor Truck and Horse Equipment. We have just added 12 Motor Trucks to our service.
Phones . . West 2815-6.
UNION TRUCK COMPANY LTD.
Let us furnish you with a Motor Truck while yours is being overhauled or repaired.
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The COLUMBIAN NATIONAL FIRE INSURANCE COMPANY
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AUTHORIZED CAPITAL $1,000,000.00
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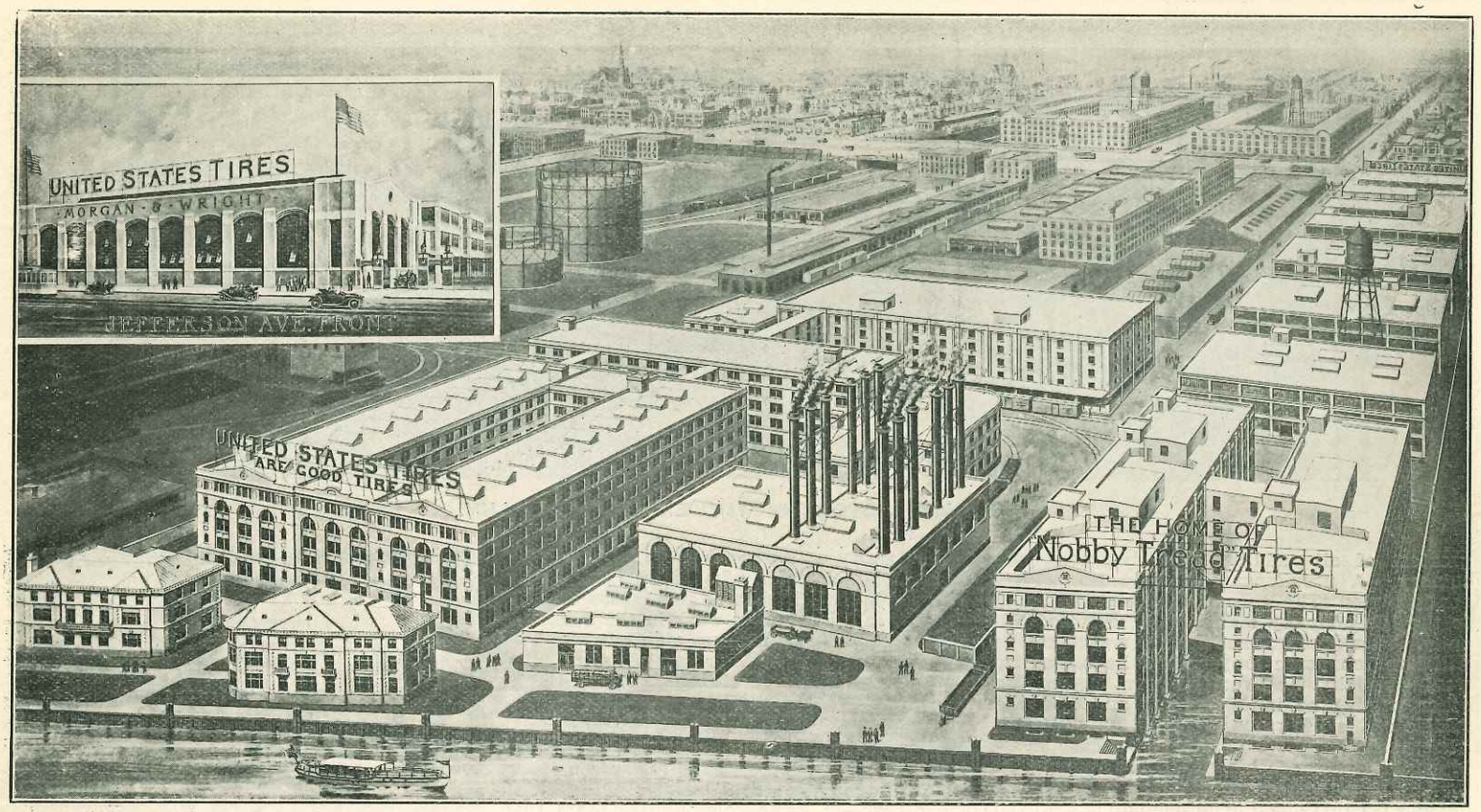
SURPLUS TO POLICYHOLDERS 1,174,537.73
EDWARD BLIVEN, Managing Underwriter.
Agencies in all principal cities and towns. Consult our agent when you need insurance.

FOR SALE WOOD WORKING FACTORY, fully equipped and running. With water-power and established business,
CLYDE L. TAYLOR, Trustee
Ross Cabinet Company
OTSEGO, MICH.



PLANT OF THE UNITED STATES TIRE COMPANY, DETROIT.

in living. Thy bespeak the new order of things on the farm.

"These automobile-owning farmers, in short, have the appearance of live, up-to-the-minute business men, which is exactly what they are. And therein lies the benefit that has been conferred upon them by the automobile.

"Having acquired automobiles, these business men farmers go oftener to cities; not their own little country towns, but to larger cities. And no man, not even one who has worn overalls all his life, likes to appear in a city where other folks are stylishly dressed, in rusty, cheap clothes. Hence the first thing these farmers do after they get an automobile is to get better clothes. That is the first step in the road of their new progress.

"And with his better clothes, the automobile owning farmer begins to 'look up.' He looks better and he feels better. He has a tremendously increased respect for himself. Dressed in better clothes and driving an automobile, he takes an increased pride in himself. He grows ambitious, and begins to think of himself, not as a plodding farmer, but as a business man. He sees himself from a new angle. He is no longer a plowman and a harvester. He is a producer, a manufacturer, manufacturing the world's greatest necessity—food.

"His wife and children benefit wonderfully. By traveling about they, too, get a new point of view. Their home is improved as if by magic. Victrolas and pianos find places in parlors which previously were barren of all music. Caruso sings for a thousand farmers' families to every sated millionaire who listens to him in the Metropolitan opera house, and is a thousand times more appreciated. For the farmer's boys and girls the automobile is a sure antidote for that devastating loneliness which for a time threatened to strip the farms of young men and women.

"Education! Recreation! Entertainment! All these are supplied for the farmer and those near and dear to him by this tireless, willing friend of sturdy iron and steel. To the farmer the automobile is more than a thing. It is a personality—an all but human entity that has opened a whole new paradise for him. There are farmers, thousands of them, who will tell you that automibles were Providential in their origin. These men know, as you and I do not know, how empty and hard and lonely farm life was before the automobile came.

"Now that the automobile has come, farmers are awakening to their opportunity. They are getting together more every day. They are asking themselves why it is that the man who simply stores a dozen eggs in a cold storage warehouse gets more for that small service than he, the farmer, is paid for the infinitely larger service of producing that dozen eggs. And they are asking themselves a thousand questions similar to this.

"And who is so blind or so foolish as to say that this great benefit to farmers hasn't been brought about by that tireless, efficient, ever-ready servant, the automobile?

"Often while driving through the country I have taken particular notice of the farms as I passed, and whenever I see a rundown farm, poor outbuildings and farm implements exposed to the weather I also observe that there is no evidence anywhere about of this farmer owning an automobile. On the other hand, whenever I see a clean up-to-date farm, no matter how large it is, where there are modern buildings, silos, windmills and other improvements, by looking closely at the road leading in I find unmistakable evidence of tire tracks.

"No doubt you will be inclined to believe that the automobile which this farmer owns is the result of the silos, the wind mills and fine barn. You will think that the farmer having amassed the wealth necessary to buy these improvements bought the automobile after he had acquired the other properties. Right there is where you make a mistake.

"The automobile is the cause of the other wealth, not the result of it. The improvements are the result. If the man who owns the slip-shod farm were to buy an automobile he, too, would eventually find himself in possession of finer houses, finer livestock, finer children, and finer everything that goes to make the sum of his possessions. The automobile would set his brain to work along with his hands. He would get ideas. These ideas he would apply to his own farm, and the result, for him, would be exactly what it has been for the man with the up-to-date farm."

"The largest piece of advertising literature published by a motor car manufacturer has just been put into the mails by the Haynes Motor Car Company, Kokomo, Ind.," says Paul R. McKinney, McKinney-Devlin Company, distributors in this territory for the Haynes car. "It is in the form of a broadside two feet five inches wide by three feet nine inches deep and the mail package measures 11¼x14½ inches. It is a lithograph in two colors on a light green stock and contains an interesting story of Haynes success this season, as well as a graphic description of the Haynes light six car. Also it introduces Model 33, a brand new seven-pasenger six-cylinder car.

THE SMILLIE TURRET LATHE DRILL CHUCK

is guaranteed to save its cost many times over. Used by the largest Brass Workers in the country. Special Brass Workers' Tools to order. Let us tell you about it. Sole manufacturer.

C. M. SMILLIE 130 E. Larned st., Detroit, Mich.

Denver Ford Starter---$15 00

SIMPLE—DURABLE—POSITIVE

Weight 8 pounds—Two working parts.

Sales Agents wanted in Michigan.

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HARRY B. PARKER CO.

REAL ESTATE—INSURANCE

Branches at Cherry 3348

1598 MACK AVE.

1645 GRAND RIVER AVE.

Ford Building DETROIT

"Business Amazing," Says Head of Hudson Company

Amazing is the only word that fits the season's business of the Hudson Motor Car Company, according to President Roy D. Chapin. During the months from July 1 to December 1 the sales figures of the company totaled almost exactly seven and one-half million dollars. This in the face of such a cataclysm of finance and general business as the world has perhaps never seen. Last year, during the same period the figures were three million dollars, showing an increase for this season of one hundred and fifty per cent over the Hudson's previous year's business.

Even with last year's record the Hudson stood well in the van of the big motor-car companies of the world. This season's record ranks it as a phenomenal winner. Yet the season for this tremendous increase, in the face of war conditions, is not far to seek. It merely is that the public emphatically set its seal of approval on the Hudson car.

The Hudson Motor Car Company's belief in the dominance of the six-cylinder was well founded. The Hudson Light Six instantly met with the approval of motorists. As a matter of fact the figures of total business for this season would have been vastly larger had it been possible for the plant to build more cars. At no time during these months was it possible to deliver cars in sufficient numbers to meet existing orders.

The popularity of the car itself was not the only cause that contributed to this triumph. It was due in no small degree to the efforts of the Hudson Motor Car Company to always give the public what it wants—to manufacture a product that will be in line with the wishes of motorists. To this end the engineering department contributed largely. Progress ever is its watchword and aim. To make each car better than its predecessor is its object. That it has been consistently successful in doing so is automobile history.

These are some of the things that have contributed to make possible the splendid selling record of the Hudson Motor Car Company during the past few months.

NORWEGIAN AUTO FACTORIES.

The motor factories of Norway are developing rapidly, many of them having been enlarged during last year and new ones established. Many of these factories have been joined in a union called A/S Det Forenede Motorfabriker (United Motor Factories), with headquarters at Bergen. Norwegian motor factories are in close competition with the Swedish, Danish, and American manufacturers.

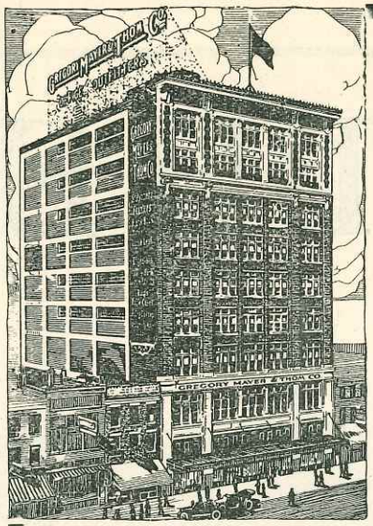
Manufacturers of electrical machines and apparatus had a successful year. One of the largest manufacturers in this line, A/S Elektrisk Bureau, Christiania, having a world-wide reputation for telephone apparatus, established a branch factory during the year in Italy to supply foreign trade.

DON'T RUN ENGINE FAST.

When using an engine-driven air-pump for inflating tires, the engine should not be run too fast. It should be borne in mind that the maximum rate of inflation is determined by the size of the tire valve, which is fixed, and that most air-pumps have been designed with this in view, so that the maker's counsel as to proper engine speed should be closely followed. Running the engine faster merely results in overheating the pump, but does not inflate the tire more rapidly.

LEAKING ENGINE VALVE.

The first symptom of a leaking engine valve is a hissing sound when compression occurs in that cylinder. To confirm the hint thus given test the compression by turning the crankshaft over slowly.



Your Office Supplies for 1915

The year that is just beginning will be the greatest American industry has known.

Are you ready for it. Is your office outfitted and outfitted capably for the work that is to come?

For nearly 20 years the Gregory, Mayer & Thom Co. has supplied Michigan business men, Michigan industries, Michigan counties and municipalities with the facilities for carrying on their affairs.

The fact that practically all these customers have re-ordered their supplies from us year after year, that instead of two upper floors which we leased years ago we now have a nine-story home of our own of which we occupy every part—is evidence that our goods have given satisfaction and true service.

With the increased facilities which our new building affords we are in a better position than ever to care for your needs.

We are dealers in—

Blank Books
Loose Leaf Devices
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Filing Cabinets
Office Furniture of all kinds
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Crane's Papers
Leather Traveling Outfits
Fountain Pens
Pencils, Paste

Office Supplies of Every Description

GREGORY MAYER & THOM CO.

STATIONERY—PRINTING—BLANK BOOKS
LOOSE LEAF DEVICES—OFFICE FURNITURE
CADILLAC SQUARE DETROIT, MICH.

Meet me at the Tuller

For Value, Service, Home Comforts

New HOTEL TULLER

Detroit, Michigan.

Center of business on Grand Circus Park. Take Woodward car, get off at Adams Avenue.

ABSOLUTELY FIREPROOF

200 Rooms, Private Bath, $1.50 Single, $2.50 up Double
200 Rooms, Private Bath, $2.00 Single, $3.00 up Double
200 Rooms. Private Bath, $2.50 Single, $4.00 up Double
100 Rooms, Private Bath, $3.00 to $5.00 Single, $4.50 Double

Total 600 Outside Rooms.

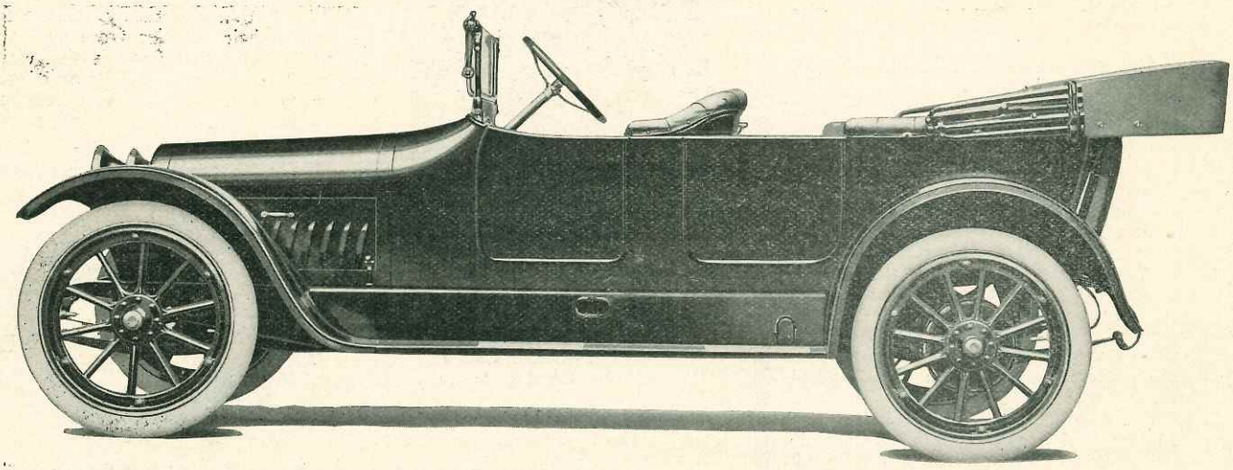
ALL ABSOLUTELY QUIET

Two Floors—Agents' Sample Rooms

New Unique Cafes and Cabaret Exellente

REGAL

THE NEW



The Motor Car of Today

There Are Three Types of Car in Greatest Demand Today

First—The eight-cylinder car.

Second—The popular-priced four-cylinder car.

Third—The low-priced, light four-cylinder car.

In response to this demand the REGAL MOTOR CAR CO. offers an excellent eight-cylinder car at a very popular price; a standard, popular-priced four-cylinder car (Model D); and a full-sized light four-cylinder car to be sold at a very low price.

REGAL CARS have always been known for their good appearance and excellence of construction. THESE NEW CARS are built to REGAL SPECIFICATIONS and are REGAL QUALITY throughout.

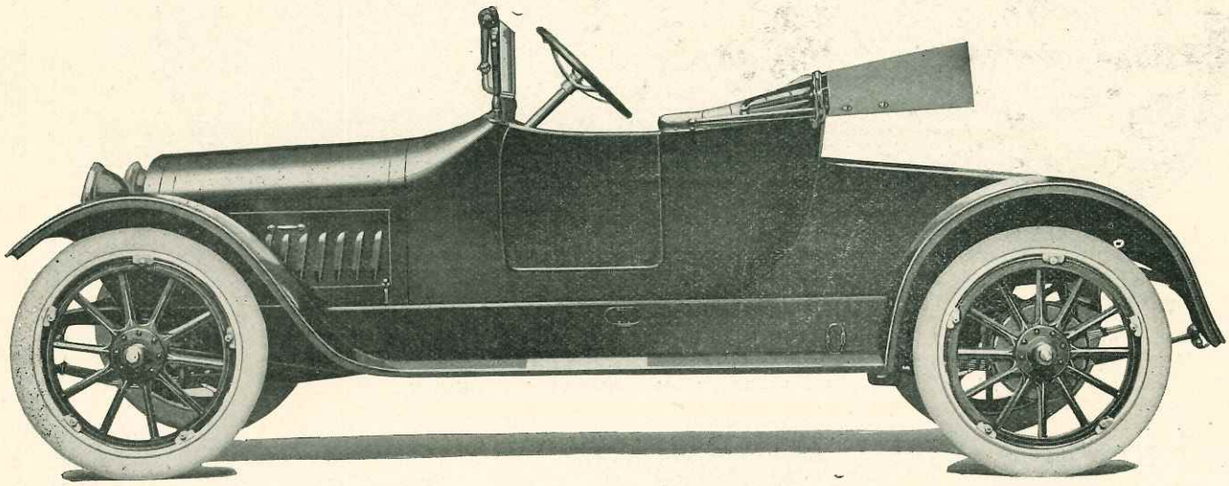
Back of them are eight successful years of motor-car construction.

The motor-car industry began with a one-cylinder motor; then came two cylin-

REGAL MOTOR CAR CO.

Regal Motor Sales Company,

REGAL "8"



ders, three, four, six — now comes the "EIGHT."

Very many people will still want four-cylinder cars and the four-cylinder motor will always hold its place as a standardized reliable affair; but those who know are impressed with the wonderful superiority of the eight-cylinder motor over any other type with fewer cylinders. Consequently the REGAL EIGHT will fill a demand existing in the hearts of experienced motorists for a first-class eight-cylinder car at a POPULAR PRICE.

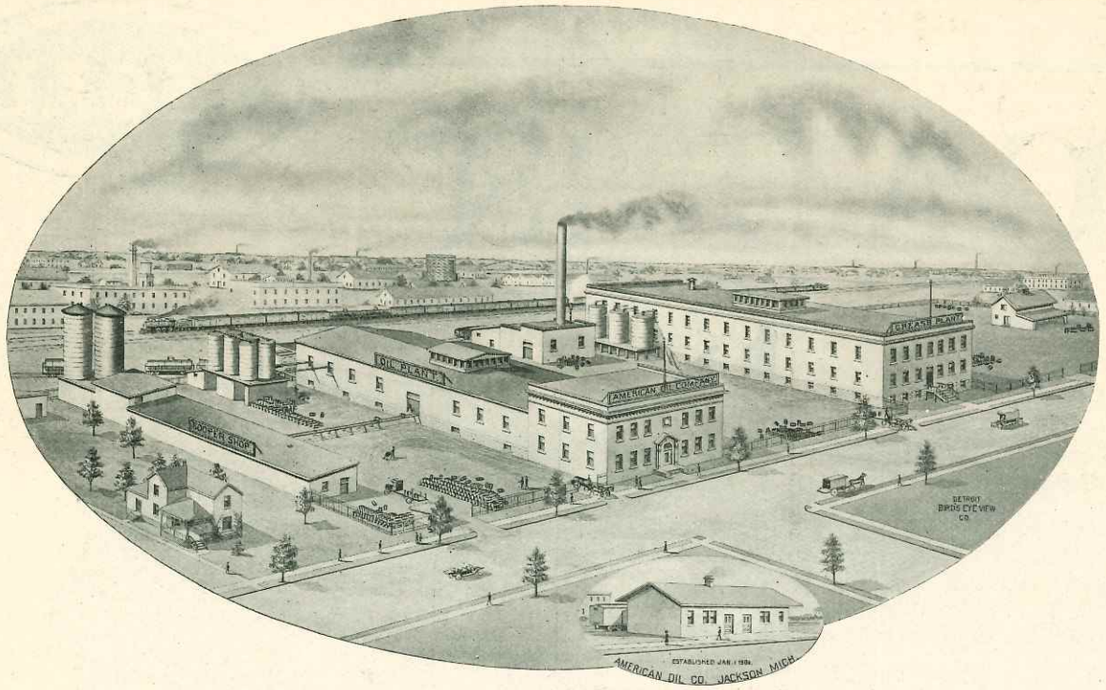
The motorist who sits behind the wheel of an "EIGHT" for the first time is surprised at the steady power, even at slow driving speeds on "high" gear. The car will glide through traffic in the most astonishing manner, checking down or accelerating instantly at the traffic officer's signal. There is plenty of power, too, for sustained high speeds if one enjoys that exhilarating sense of "flying" gained only by swift driving in a sweet-running "EIGHT." SPECIFICATIONS OF THE EIGHT-CYLINDER REGAL include either a five-passenger streamline touring car body or a two-passenger roadster body.

DETROIT, MICHIGAN

Canadian Factory:
Canadian Regal Motors, Ltd.
Berlin, Ont.

758 Woodward Ave.,

Space 98-101 Detroit Automobile Show



PLANT OF THE AMERICAN OIL COMPANY, JACKSON.

One Hundred Per Cent Service

The American Oil Company, of Jackson, is living up to a standard establishment when it was organized in January, 1904, and started business in a modest way in a small office. The men who form the organization determined to give 100 per cent service. Their fidelity to that standard has won for them a success that is enviable and that is breeding a constant increase throughout a rapidly expanding territory.

The officers of the company are: President, John W. Shove; Vice-President, D. S. Fleming; Treasurer, F. H. Helmer; Secretary and General Manager, A. J. Callaghan.

The Detroit offices of the American Oil Company at 1320 Majestic building are in charge of S. L. McCombe. The company is represented in Chicago by L. Merkle Company.

The lines carried by the company are the most complete that the automobile trade could wish. Among the specialties placed upon the market by the company are automobile greases and oils, tempering oils, cutting oils and cutting compounds, and a complete line of lubricating oils and greases for machine shop and power house lubrication. Their trade mark sign is found in many conspicuous places. It is "Amoilco," and stands as a guarantee of the products of the company.

The New Oakland Speedster

The new Oakland Speedster, the 1915 offering of the Oakland Motor Company, of Pontiac, is the one known as "Model 37." It is built to go fast and has a number of distinctive features of interest to owners of cars or prospective purchasers.

The car is built low, of strong construction, long tapering hood, V-shaped radiator, deep upholstered, comfortable seats; quick acting, efficient brakes; Stewart vacuum gasoline feed. The famous high-powered Oakland-Northway motor will, on high gear, carry one at six miles an hour through city traffic, or at 60 miles an hour on track or road. The car sells at $1,100.

The Oakland company has devoted the past year to placing the plant in the best possible condition and the highest standard of efficiency. During the season of 1914 they turned out approximately 9,000 cars. The standard equipment of the car includes electric headlights with dimmer attachment controlled by button on the instrument board, electric tail light and shroud light, divided windshield, Stewart speedometer, full set of tools, license tag brackets, electric horn, tire irons with extra demountable rim, non-skid tires on the rear, gasoline gauge and muffler cut-out.

The body is built for two passengers and is of the speedster type. The frame is of pressed steel. The car is equipped with semi-elliptic front springs and three-quarter elliptic underslung rear springs. The I-beam drop forged front axle and the one-bearing full floating 3¾ to 1 rear axle are used. The wheels are of wood with demountable rims, with tires 33x4 inches. The wheel base is 112 inches. The motor is a four-cylinder, en bloc. The ignition is the Delco, as is also the starter and lighting system, with automatic spark advance. The carburetor is the Marvel make. All the other specifications are in keeping with the foregoing.

A car constructed on the lines of the new Oakland, besides having a graceful, tapering body, offers the least possible wind resistance. The high speed motor is responsive, silent, smooth running, giving quick and easy pick-up that makes it seem a thing alive and full of "go." The car is pronounced a positive delight by owners who like to ride fast and get somewhere and back the same day.

AUTO SHOW SALES GOOD.

As a demonstration of the real interest shown by the visitors at the New York show, the Paige Motor Car Company reports unprecedented activity. On the first evening of the show seven retail sales were closed at the Paige booth, four orders being taken for the new Paige "6-46," and three for the already well known "4-36."

Walter Schimpf, former engineer of the E. R. Thomas Motor Car Company, patentee of the Schimpf air starter and the injex primer, has been appointed manager of the service station of the Saxon Motor Car Company in New York. Mr. Schimpf has been an expert in gasoline motors ever since the inception of the automobile business.

The Only Brand That's Best

AMERICAN OIL CO. TRADE MARK AMOILCO REG. U.S. PAT. OFF. 100% Service THE ABOVE TRADE MARK IS YOUR GUARANTEE JACKSON, MICH.

Automobile Oils
Automobile Greases
Tempering Oils
Cutting Oils
Cutting Compound
Machine Shop
Lubricating Oils
and Greases

"Automobile Greases—The Best Kind."

American Oil Company
JACKSON, MICH.
Detroit Office
1320 Majestic Bldg.

ONE OF THE PLANTS OF THE CHEVROLET MOTOR COMPANY, FLINT.

The Future of the American Motor Car

By K. P. Drysdale, of Cadillac Motor Car Co.

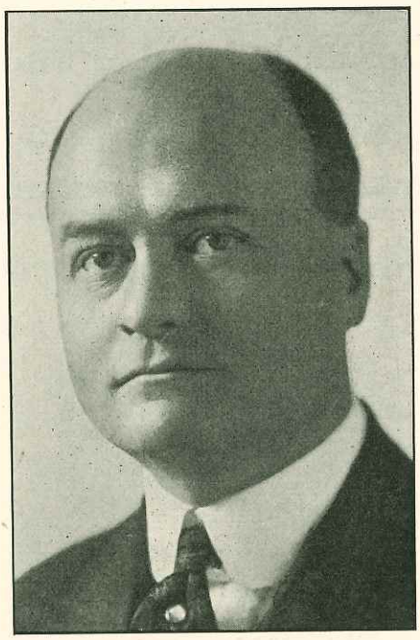
The advent of the year 1915 finds the automobile manufacturer who has built upon the common principles of commercial integrity and good sense perfectly confident about his future and his prospects. Usually the cartoonist pictures the new year as a baby just out of the cradle, yet to experience the world's rough hand. So far as the motor car maker whose product is established is concerned the year 1915 is not regarded as an uncertain toddling infant. He looks upon the newcomer as a lad husky enough to grasp the legitimate fruits of a great industry that has developed through natural means and not by hothouse methods.

This pleasing confidence is due to the knowledge that the well built, thoroughly honest car —the car that represents the experience of men who know and are willing to give their utmost in effort and in value—is on a foundation so solid that nothing can shake it from its position in the industrial world. Perhaps a few years ago one could not speak with such certainty because the period of evolution had not yet passed. But now the situation is different. There can no longer be any embarrassment along this line for those whose product is thoroughly established. The prospective buyer has learned all this. He will exercise this knowledge in 1915 by employing discrimination that buyers have learned to exert.

Therefore the confident and well poised manufacturer knows that the next 12 months will, along certain lines, make automobile history. The new chapter to be written in this period will demonstrate the strength of the car of real value. There will be small place for any other product, and the weakling and the incompetent are beginning to see the handwriting on the wall. It is the old, old story—retold—the survival of the fit and the triumph of the good.

The car with real value in its makeup and real character in the personalities behind it has nothing to fear, amazing as such a statement may sound and in spite of the fact that the industry now represents hundreds of millions in investment.

The possibilities of automobile sales have not much more than begun to be realized; the great depths have not yet been sounded. The automobile long ago demonstrated that it is something more than a luxurious toy. Its great value in transportation is being realized and appreciated more and more every day. It is scarcely necessary to take up this proposition in detail. Every one is familiar with what a good car can do in the way of actual, practical service.



A. B. C. HARDY,
General Manager Chevrolet Co.

How Charles Denby Became Interested In Auto Exports

C. H. Dunlap, general export manager of the Hupp Motor Car Company, has recently put in a great deal of his time in traveling in the interest of the Hupmobile Company. Not long ago Mr. Dunlap on returning from an extensive tour of South Africa, stopped for a short time at Vienna. There he met Charles Denby, who was then United States consul-general to Austria.

Being a Detroiter, Mr. Denby was greatly interested in the automobile business. At luncheon with Mr. Dunlap, he pointed out the wonderful possibilities of the industry in Austria and Germany. His five years' experience in Austria had given him an insight into business conditions, and he saw that the motor car business was possible of remarkable development.

Mr. Dunlap was greatly impressed with the talk of Mr. Denby and he thought at the time there awaited a wonderful opportunity for a man of his experience in the motor car business.

Last month when Mr. Denby returned to Detroit, after resigning from the consular service, he connected himself with the Hupp Company in the capacity of general foreign sales representative, because of the wonderful opportunity that awaits American business in Europe. He is enthusiastic of the Austrian and German markets in particular.

"While the people in Austria and Germany are confidently predicting ultimate victory," he said, "they are also predicting great changes in import and export trade after the war. They will be naturally prejudiced against purchasing from the allied countries. But they must have raw material, as well as finished produce. There is where the United States will score, if she accepts her chance. The market will be there —and it will be an ultra-receptive mood.

"The Austrians and Germans, however, would not only divert the channels of trade, but they would also bring the balance of power in the financial world. At present London is the monetary center—the clearing house of Europe. Germany and Austria will be glad and will assist in every way possible to see that center shifted to the United States."

"The manufacturing plants in Vienna, which depend largely upon the United States for raw material, were running when he left, but were rapidly depleting their supplies. Since his arrival in this country, however, he has been advised that cotton is being shipped there under the government insurance act, in sufficient quantities to supply the plants."

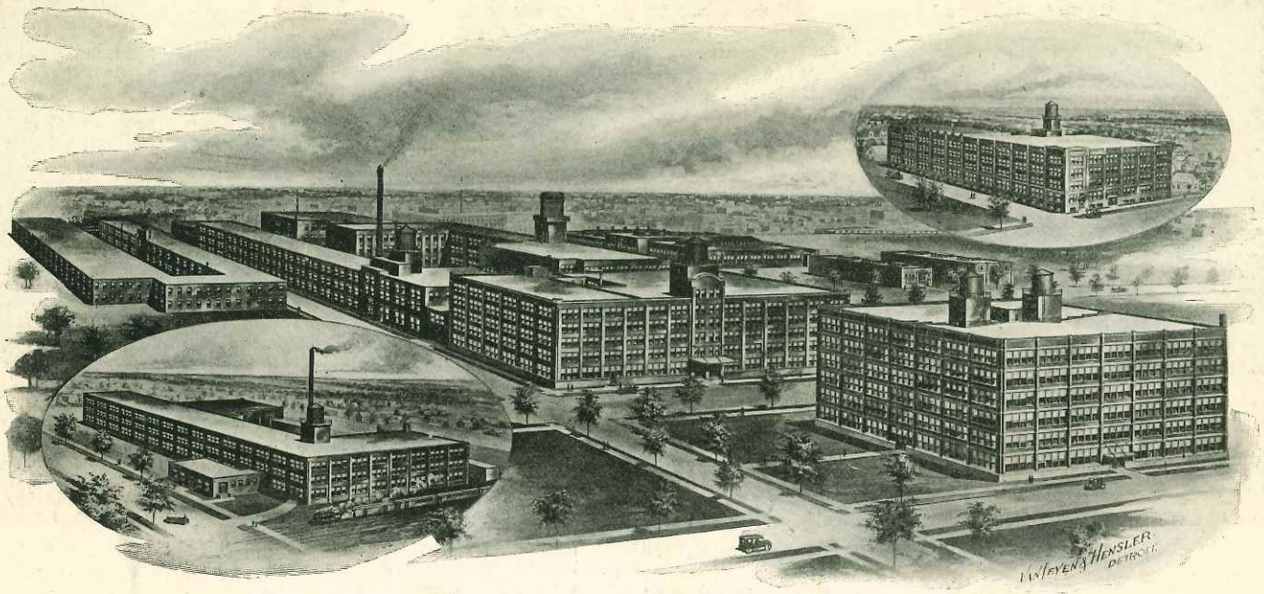
SECURING ANTI-SKID CHAINS.

A rather long hook on the inside chain, and a small but good padlock on the outside chain, will fasten an anti-skid chain on the wheel, so that there is no danger of its coming off in use and either winding around the brake drum or being lost on the road. Releasing the padlock will allow enough slack of the inside chain so that the long hook may be unfastened.

REO COMPANY'S PROSPERITY.

A statement issued by Donald E. Bates, secretary-treasurer of the Reo Motor Car Company to the stockholders of the concern says that in the 10 years of the firm's organization it has paid 1,527 4-10 per cent on its original capitalization in dividends. Profits for the last fiscal year of 14 months were $2,539,187. Assets and liabilities are given at $5,120,782.

Largest Automobile Body Manufacturers in the World



WORKS OF THE

Fisher Body Co.--Fisher Closed Body Co.--Fisher Body Co. of Canada, Ltd.

Detroit Detroit Walkerville, Ontario

Not only occupy more floor space but the high degree of efficiency makes possible the record quantity production of quality work

Packard Plant Has 28 Acres of Floor Space

At the present time the Packard factory has approximately thirty-eight acres of floor space. While it has not done any extensive building during the past year, it has concentrated on improving factory equipment by the addition of special machinery and tools and the installation of other labor saving devices. In this way it has spent considerable money in bringing the factory organization into the highest state of efficiency that it has ever reached.

The total valuation of its output during the last fiscal year, including both motor carriage and truck sales, amounted to approximately $15,000,000.

Seamless Tube Industry to the Front

Allan A. Templeton, for more than sixteen years connected with the Morgan & Wright Company, will sever his connections with that company Feb. 1, and will devote his entire time to the business of the Detroit Seamless Tubes Company, of which company he became president Dec. 1 last.

Mr. Templeton started with the Morgan & Wright Company as a clerk at a modest salary and worked himself up through all the grades of the various departments until he was master of the details of the big tire concern and its vice president. Daniel Wells is vice president and treasurer of the Detroit Seamless Tubes Company, and R. H. Phillips is secretary.

Mr. Templeton's company is the reorganization of an old concern whose product is favorably known from Maine to Alaska, and is used by railroads, machinery manufacturers and automobile concerns. All the seamless tube plant has lacked in the past was volume to supply the demands of the trade. It is for the purpose of expanding the capacity and improving the product of the concern that Mr. Templeton and his associates have decided to devote all their time and energy to the exclusion of other interests.

The use of steel tubing is increasing at a rapid rate, and this reorganized company, with every facility, and the backing of all Detroit, will immediately jump to the front as one of Michigan's important industries.

Specializing in Truck Bodies

With the advent of commercial vehicles, there at once presented itself the necessity of superimposing upon them the proper bodies, both suitable in capacity and design. The Motor Truck Body Company, of Detroit, was organized to meet this demand in designing and manufacturing such bodies as the various mercantile problems demanded.

The company was organized in January, 1912, and at once set about to prepare many and various designs which would be best adapted to the capacities of the trucks manufactured. It would seem to the every-day layman that it would be but a matter of following the old carriage and wagon builders' method of manufacturing bodies for these truck chasses, but it is most essential that a body mounted on any chassis must give the user the maximum load capacity and yet not allow of an overload, at the same time giving to the consumer a body best adapted to the requirements of his particular merchandise. The time will never come in this industry when a uniform body will be manufactured, as the lines of use to which the truck is put will not permit of such uniformity. Therefor the business of manufacturing commercial bodies will be confined to making a body for each individual need —in other words the company is a specialist in its line.

There is maintained at the offices of the company an efficient engineering department which is at the disposal of the truck salesman or his agency for the sole purpose of designing and helping decide just what is best for his prospective customer, and those wishing to have these problems deciphered will find that this department has a full knowledge of all these requirements, which has been learned through experience. The company manufactures its bodies completely, from the raw material to the finished product, which includes the finished, painted, lettered and upholstered body.

LONG DISTANCE MOTOR CAR RECORD.

J. W. Sutphen, of Los Angeles, claims to be the long-distance short-time motorist of Southern California. His record for the past year is 32,000 miles of continuous travel. On Nov. 1, 1913, Mr. Sutphen bought a Hudson "six" phaeton. On Nov. 1, 1914, the speedometer on his car registered 32,561 miles. It had been driven exactly 12 months, averaging 2,713 miles per month, or over 100 miles for every week day of the year.

Mr. Sutphen is a representative of the North American Fruit Exchange, being in the outside department, and it is his business to visit every fruit district in California. He is constantly on the road. During the year Mr. Sutphen has covered practically every tourist route in southern California.

JOSEPH SCHULTE,
Representing Cadillac Motor Car Co., Detroit.

HARRY W. FORD, PRESIDENT
Saxon Motor Car Co.

G. E. BLEIL,
Huppmobile Sales Dept.

Designer Must Build to All Requirements

By Fred W. Warner, Oakland Motor Car Co.

Designers of motor cars, while they have received training in the laying out of the mechanical units of the chassis have by no means ended their training there. A motor car designer in order to be highly proficient must make a deep study of the conditions under which the car that is in the making is to operate; he must place himself in the position of the city business man, the farmer, the speed bug, the reckless driver, the technical and untechnical owner.

Besides being able to build in conformity with the wants of these men in the matter of chassis design and construction he must cooperate with the body designer not only as to style, but as to materials. A busy city merchant may not drive even for a short period during a slight rain, whereas a farmer, hardened to outdoor life, would not hesitate for a moment to venture out with the car open to the action of the elements.

The designer then must not build to the busines man alone but most consider the farmer, whose car may never have the top raised and the upholstery often exposed to rain and snow. He must consider the farmer again when it comes to speed on muddy, slippery, rough country roads and not keep in mind the city man alone, who must of necessity use the car for the greater part of its life in and around the nicely paved streets of the city.

The designer of the Oakland 37 has paid as much attention to the needs of the farmer, the speed bug, etc., as he has to the city owner. This car has been constructed to be used on country roads in all kinds of weather at all speeds.

Another point of detail which ordinarily is overlooked is the quality of the upholstery. Oakland seats and cushions are made of real leather whose finish is designed to withstand the action of rain. An Oakland farmer owner soon learns that he can drive his car through a rainstorm without having the upholstery become soggy and watersoaked and without having the finish of the car look as if the vehicle were twelve years old.

There are dozens of details of the Oakland which have been worked out with all the purchasers in mind and not merely one type of owner. Country folks have greater use for the wide open throttle than the city owner who gets to the country roads only occasionally. Thirty-five and forty miles an hour quite frequently is the desired speed. Yet a car to attain that speed and keep it for any length of time on a muddy, slippery, rut-worn country road must be balanced in every detail.

EXPENSIVE LABORATORY WORK.

Few purchasers of high grade motor cars realize the vast expenditure of cash and energy that precedes the manufacture of a new model. It is stated by the Packard Company that it experimented for years before bringing out its first six, and even in its present advanced stage of development spends from $300,000 to $500,000 a year in engineering forework.

The experimental work ranges from rough riding over mountain trails to 300 hour tests on the dynamometer. This is the price paid for keeping abreast of the times to satisfy the demands of a hypercritical public. Probably four-fifths of the energy is put forth in finding out what not to do.

The roughest and wildest trails of the Far West are selected for testing sample cars, embodying various experimental developments. These cars are hammered through the hardest road work that human endurance and skill can execute. Drivers like S. D. Walden, vice-president, and J. G. Vincent, chief engineer of the Packard Company, hurl experimental cars through thousands of miles of desert and mountain roads with the knowledge that this is the only treatment that will establish beyond any possible doubt or peradventure that there are no structural defects and no weaknesses of design in the cars under observation. Walden, who recently returned from a test trip during which an experimental car was taken from Detroit to Los Angeles and back, drove 1,000 miles in three days, from Albuquerque to Kansas City, over some of the worst going in the Southwest.

ACCESSORY MANUFACTURERS ELECT.

The Motor & Accessories Manufacturers, at their annual meeting held late in the week of the New York automobile show, elected F. Hallet Lovell, Jr., of the Lovell-McConnell Manufacturing Company, president; C. W. Stiger, Stromberg Motor Devices Company, first vice-president; C. E. Thompson, Electric Welding Company, second vice-president; Thomas J. Wetzel, Dyneto Electric Company, third vice-president; L. M. Wainwright, Diamond Chain & Manufacturing Company, secretary; Alfred P. Sloan, Jr., Hyatt Roller Bearing Company, treasurer, and William M. Sweet, manager.

ABANDON FERRIES FOR TUNNEL.

Beginning Jan. 10 the Canadian Pacific started to send its freight trains through the Michigan Central tunnel instead of using the Wabash facilities as heretofore. The C. P. R. passenger trains have been going through the tunnel for some time. The terms of the agreement are not given out. It is expected that the action will expedite the handling of C. P. R. freight.

WHEN THE RIM SQUEAKS.

Annoying squeaks, such as frequently develop with certain types of demountable rim, often may be remedied by securing a new set of wedges or lugs for holding the rim in place. In cases where the wedges are not so worn that one or two cannot be drawn up perfectly tight, it is possible that the rim itself may be slightly out of round so that it does not fit the wheel properly. In such a case it may be advisable to discard it for a new one.

Mr. Joy Protests Against Bank Politics

Henry B. Joy, of Detroit, asserts that there is a concerted move to make the federal reserve bank the football of politics.

He writes as follows:

"I certainly am so thoroughly disgusted at the dragging of the federal reserve bank of Chicago into the limelight by Congressman Lindbergh, of Minnesota, and others, that I feel warranted in writing you.

"I have today also written to Mr. Hamlin, of which letter I have sent you a copy. Of course, we business men and bankers all felt that the federal reserve bank would become the football of politicians and of a certain class of newspapers, but it has come so much sooner than I expected.

'In the Chicago Tribune of January 6 is again a long article by the staff correspondent giving interviews by Congressman Lindbergh, of Minnesota, and Congressman Glass and Senator Owen, etc., a lot of pure, unadulterated sensational slush to stir up prejudice and trouble. This I have no doubt is a very laudable object from somebody's point of view, and probably pays or they wouldn't do it.

"I do feel that it is one of the prerogatives of the federal reserve board to demand that politicians and newspapers allow the business of the federal reserve bank to pursue its course under the direction of the federal reserve board and work out its own salvation as best it may.

"Such gratuitous and unnecessary disturbing of conditions—which, so far as I know from any stockholding banks within district 7, are working out just as well as it is possible to do and just as fast as it is possible to do under the circumstances—is entirely unwarranted. I have kept closely in touch with every stockholding bank in Michigan, and I have not heard one single unfavorable comment on the work of the federal reserve bank of Chicago.

"If there are any unfavorable comments from any source, it would be indeed most gratifying if they would be permitted to reach members of the directorate in an authoritative manner from the federal reserve board in Washington, if they have any such complaint filed with them. But that the federal reserve board in Washington should allow itself to be undermined and the federal reserve system brought into disgrace by ambitious politicians and sensational newspapers is utterly criminal in effect, unless there is some warrant in fact for such sensational political criticism, and even in that case, then it should be required by the federal reserve board—I venture to suggest—that criticisms of a district bank should be made to the federal reserve board, so that it might itself be informed and that it might in turn inform the directors of the district bank which are being attacked for their methods and results obtained.

"Is it anything less than criminal for a politician, who can enlist the columns of a newspaper of the character of the Chicago Tribune, to put out the following statement? The Chicago Tribune prints the following as the words

" 'To cause high prices all the trust, as typified by the control of the Chicago bank by Mr. Forgan and Mr. Reynolds, will have to do will be to lower the re-discount rate so that the associated banks will more generally apply for and receive the federal reserve notes, producing an expansion of credit and a rising of the stock market.

" 'Then when business men have adjusted themselves to these conditions, the trust can check world-wide prosperity in midcareer by arbitrarily raising the rate of discount. It can cause the pendulum of a rising and falling market to swing gently back and forth by slight changes in the discount rate, or cause violent fluctuations by a greater rate variation'

"Now, whatever Mr. Forgan and Mr. Reynolds may have done they will have to be responsible for. They could have done nothing or take no action as the executive committee or as directors without the sanction and approval of the other members of the executive committee or of the other directors.

"If any act has been taken by the executive committee the record of it is on file in the minutes of the meeting of the executive committee, which minutes are submitted to the regular monthly directors' meeting for the approval of the board itself.

"So far as I knew and am able to ascertain, the work of Mr. Forgan and the work of Mr. Reynolds has been diligent, ceaseless and unfailingly in the interests of the promotion of the welfare of the federal reserve system and of the federal reserve board in Washington, and of the federal reserve bank of Chicago district 7.

"Every act which has been done by the executive committee has had the approval of the board of directors and though I have been unable for various reasons to attend myself every board meeting, yet I should have voted for everything done there had I been present. So far as I know, the only negative vote ever recorded at a meeting of the directors of the federal reserve bank of Chicago was my personal vote recorded in opposition to the small compensation which the other members of the board voted as being proper and adequate for their services.

"I voted 'No' because I thought the compensation was ridiculously small and did not begin to dream of paying in any way for the time necessarily spent on the affairs of the bank as a director. I favored $100 a meeting as the fee to each director and $100 a month for incidental expenses, correspondence and time devoted to keep educated on the current affairs of the federal reserve bank.

"The federal reserve bank board in Washington has, however, overruled even the compensation which I felt was too small and has granted a still smaller compensation to federal directors. I am sure, therefore, that Mr. Forgan and Mr. Reynolds cannot be charged with grabbing exorbitant fees. The fees are ridiculous and not adequate and will not ultimately prevail and should not.

"I myself today am on my way to Chicago from New York, having left New York yesterday when I greatly desired to remain there, in order to attend the meeting at Chicago on account of the political disturbances and turmoil injected into the affairs of the bank by congressmen and senators above enumerated.

"Whatever the directors of the federal reserve bank of Chicago have done, they will have to be responsible for and I am one of them and I do not propose, without picturing the iniquity of it, to permit such slush to be fed to the public by anybody, attacking the sincere work of the directors of district 7 toward the working out of the federal reserve system and the sincere work of the federal reserve board in Washington in aiding and controlling and regulating under the federal reserve act the actions taken by the Chicago district bank directors.

"What Mr. Lindbergh states as being within the possibilities for Mr. Forgan and Mr. Reynolds to do in the way of fixing the rate of interest up and down in the Chicago district is utterly false in every particular and totally impossible, because whatever rate of interest is recommended by the directors of the federal reserve bank must first be approved under the provisions of the federal reserve act by the federal reserve board in Washington before it is put into effect. All the rest of the articles and interviews in the Chicago Tribune are on a par with the sensational slush which I have quoted.

"If we are going to save the federal reserve bank and make the most of it which it is possible to do in the interests of business, I most urgently appeal to the federal reserve board in Washington to save those gentlemen who are serving their time as directors on the federal reserve bank in Chicago without compensation, practically, and who are sacrificing their own interests to attend to the affairs of the bank, hoping to upbuilt it and aid in its evolution, from just such newspaper and political attacks as that being fomented in this instance.

"If there are any acts done by Chicago district 7 bank which are to be criticized by the bankers of the district who own the stock in the bank as member banks and who own and supply its capital as member banks, or by the business men of the district, whether member banks or non-member banks, the business men directors and the government directors are here on the job in the district to hear any complaints and criticisms. I have heard none, nor do I know of any so far. It is indeed with deep regret that I find a newspaper or politicians willing to thrust the federal reserve bank system into the mire of pothouse politics and newspaper sensationalism."

PROTECTING SPARK PLUGS.

Old garden hose may be used to protect spark plugs by cutting it into the correct lengths and forcing into place around the projecting part of the plugs. This forms a good method of carrying plugs loose in the tool box.

National United Service Co.

WHAT IT MEANS

We make money for the service station, create wonderful touring facilities and supply **NUSCO** lines, which covers everything from a spark plug to a three-ton truck.

Each service station agrees to price sale of our Nusco lines, agrees to give special courtesies to users of cars who possess our cards. He is given the right to become interested in the parent company. Our discounts are so good that one sale is equal to many sales of our competitors' lines.

Our service stations are one big family, all helping one another. If overstocked in any line we help you to unload, regardless of competitors or not.

We give service all the time.

We **send business to you.**

Our tourist proposition gives you the following:

No overcharges.

Special touring rights.

Legal assistance.

Hotel accommodations (special) upon putting up security at place of starting, you will not have any outlay of money for upkeep of car. On your return you pay in full.

Is This Interesting?

Write Us at Once.

National United Service Co.

Busiest People of the Industry.

306 Ford Bldg., Detroit.

The Concentration of Motor Car Making

By Henry M. Leland, Cadillac Motor Car Co.

It is said in the good book that "young men shall dream dreams and old men see visions." May I tell you of my vision in regard to the future of the automobile industry? This I will state in general terms only, because it will be less invidious if I do not interpret too particularly. In my vision I see the self-propelled vehicles increase in number and utility until they cover the face of the earth. They take a wider and mort important part in the transportation of the future as regards the carrying of people as well as all manner of goods and merchandise, not superseding the locomotive and the steamboat, but carrying the mighty volume of traffic to and from these transportation giants, which we must still depend upon for the long haul, so to speak.

The other part of my vision is not so pleasant to contemplate. I see that the number of manufacturers of automobiles has about reached its maximum, and that it will constantly decrease until but a comparatively few immense plants will supply the entire world with motor driven vehicles of every type and nature.

Dreams do not always come true. But if this dream were to become real, and there is always that possibility, what would be the message to our large membership of automobile engineers and to the countless numbers of embryo automobile engineers who are now coming through the colleges? The answer is plain. Every one of the 130 or more American automobile plants has its own corps of engineers. Some need more than others.

Should these plants become materially less in number there will be a substantially less number of automobile engineers required as designers. Then what will those engineers do who are displaced as one after another of these plants is diverted to some other industry? To suggest, if I may, a possible solution of this possibily vital question is my reason for injecting at this time what I hope none of you will consider merely a pessimistic outburst. I can see two great opportunities for the engineers who will be thus liberated from automobile designing should my prophecy become history.

First. The converted plants will be re-equipped and effectively operated to supply the constantly growing demand for other necessities. New devices must be brought into being to keep pace with and to supply the need for all the material things which are constantly increasing and which our continuously refining civilization demands. not only for the daily wants and material needs but for the uncountable means to supply the ever increasing desire for culture, refinement and all that goes to make up that highest civilization which this country is ever reaching after. Supplying this demand of the future will mean increased enlargement of our miscellaneous industries and will call for men of your engineering skill, experience and training. And it only remains for the automobile engineer to qualify and prepare himself for this enlarged field of opportunity.

Second. Most of the atuomobile engineers of the future who remain in the automobile industry as a part of one of the few large plants will apply their training and ability to scientific automobile manufacturing rather than to scientific automobile designing. Here is the great opportunity of the future for the automobile engineer. May I outline my conception of the characteristics of such an automobile plant as will stand the stress of time and of the manufacturing opportunity in such a plant for the automobile engineer?

The automobile plant of the future will have the proper combination of capital and brains, correlated to the right ideals and standards. It will produce such a car in design, efficiency, quality and price as will insure a large volume of business, because the requisite conditons cannot continue permanently without plenty of capital and a large volume of business. Its management will be by one who is in hearty accord with the high ideals which must be realized in order to establish a permanent and successful business of the kind and magnitude here outlined.

There are two magic words which you have heard before and which are the most potent that can possibly be used to express the essentials for success in the manufacture of automobiles on a large, permanent and successful basis. I hasten to take you into my confidence and tell you that these two words are "knowing how." There is no substitute for these two words, nothing else can take their place.

GARFORD "KING OF MOTOR TRUCKS."

The Garford furnishes one of the most interesting exhibits in the truck department at the Detroit auto show. This type of truck gives the onlooker a shiver, as though reviewing a strong battleship, with its massive steel frame supported by Krupp steel springs and auxiliary cross members; these in turn being supported on crome nickel steel axles that it would seem impossible for any load to strain.

This truck has many other advanced features of motor engineering that entitles it to the name of the "king of motor trucks," and when compared with any other make of truck they seem to be in a class by themselves. They are used very extensively all through the east and have a great record for standing up under the most trying conditions of heavy duty.

One of the special features of this truck is the large steel cab with sufficient room to seat three men and is mounted right over the engine. This however is not like other makes of trucks where the hood sets over the engine, as the driver can get to his engine by lifting up a steel cover, and work on his machine without leaving the cab, making it more accessible for repairs than even the build of trucks that have hoods that stick out in front of the drivers and are set for that special purpose. These trucks are built in sizes from two to six tons capacity, as well as tractors with short wheel base for towing heavy loaded trailers.

The Commercial Auto Repair and Storage Company are the dealers for Garfords and the three-fourth ton Willys Utility for Detroit and vicinity. They are located at 161-3-5 Larned street east. Thomas F. Cowhey is president and general manager. The Brennan Truck Company, cartage agents for the New York Central Lines, is the purchaser of the truck exhibited at this show. The selection was made after the cartage company had spent considerable time investigating and demonstrating with most of the leading makes of trucks.

TO HOLD EFFICIENCY SESSIONS.

A new hall has been erected at the yard of the Stearns Salt and Lumber Company in Ludington especially for the use of the foremen in "get together" meetings.

These meetings are a continuation of the efficiency meetings which were held last winter, which were productive of very gratifying results. The new hall is a second floor addition to the yard office building, and is a room 18 by 42 feet, with a seating capacity of about 200. The interior finish is of fibre board and wood strips, in panel effect, and the color scheme is cream and drab.

STUDEBAKER IMPROVEMENTS THE PAST YEAR.

The magnitude of the Studebaker Corporation and the vast extent of their plants, precludes the possibility of measuring their annual industrial expansion and increase of manufacturing capacity by ordinary standards. Additions to plants and improvements within departments of the Studebaker very frequently pass unnoticed by the press because of their apparent insignificance in comparison with the many big buildings which house this industry in Detroit, South Bend and other sections of the country. It would be like estimating the additional quantity of water from a rainfall in the upper peninsular to the vast body of Lake

According to tests made by a certain large American rubber manufacturer controlling rubber plantations in the far east, there is a marked difference between the crude rubber obtained during the dry season and the material obtained from the same trees in the rainy season. The "dry season" rubber is reported to possess about 25 per cent more tensile strength than the "wet season" product. Rubber importers suggest that a proper classification of crude plantation rubber should comprise the additional grades "dry season" and "wet season."

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The Permanency of the Motor Car Industry

Excerpts from an Address by President William Livingstone, of the Dime Savings Bank, Detroit

"It is worthy of note that at no time in twelve years has the industry as a whole taken a backward step, the records showing that each year an increasing number of cars have been made and sold; from less than a thousand cars in 1902, when the business may really be said to have begun, to 435,000 cars during the fiscal year of June 30, 1914, the latter having a total valuation of about $425,000,000. There have been few wild-cat schemes, and those few have died a-borning. The makers as a class are energetic and enterprising, taking pride in their product and in their ability to give employment at substantial wages to the best men of many trades, including engineering skill of the highest quality.

"The disposition in early years to look askance at the automobile manufacturer and dealer has passed, and with further knowledge of the business, credits commensurate with sound banking methods have been extended to the mutual benefit of all. No longer do we hear talk that the automobile business will go the same way as the bicycle business, it being generally agreed that the making and marketing of motor cars is among our greatest industries—a situation to be credited to a large degree to the care and conservatism of bankers who have been active in caring for the automobile dealer among his patrons. Thousands of people living in the suburbs, including farmers, doctors and salesmen, actually need cars in their general every-day life. Big cities continue to show the registration of new automobiles, particularly of the moderate-priced cars, with the market almost normal for the higher-priced models.

"The future market for automobiles rests not alone in this country, but throughout the world, especially as European makers are not likely to produce very much for some time. Last year American automobile manufacturers exported cars to the value of $26,574,000, with parts amounting to $8,000,000, or a total of $34,500,000. When it is taken into consideration that France alone exported motor cars to the value of $44,000,000 last year, with Germany and Italy totaling almost the same, it can be seen what a world-wide trade is awaiting the automobile maker of this country.

"Commercial vehicles are fast coming into the field, and with the destruction of horses and trucks in the war on the other side, this end of the business must have a healthy growth during the next few years. There are now about 100,000 freight carrying motor vehicles in use, the production during the past twelve months being about 30,000, with the ratio of increase greater than was ever known in the passenger car field. In the state of Michigan, the Department of Labor reported that for 1912 the various establishments making automobiles and parts employed 89,413 men, and this number has increased.

"It will be seen, therefore, that the automobile is now an established article of commerce, with an excellent future."

The Opportunity for Profit in Motor Securities Is Greater Today Than Ever Before

A. W. Wallace & Co.

MOFFATT BUILDING

DETROIT Main 66 MICHIGAN

Members Detroit Stock Exchange

Clearings in Leading Cities for 1914

Clearings through the banks, as usual, reflect very closely the volume of business transactions during the past year, the total, according to returns received from 129 leading centers in the United States, amounting to $153,825,304,129, a decrease of 8.6 per cent as compared with the $168,222,452,497 of the preceding year and 11.1 per cent as contrasted with 1912, when the aggregate reached $172,957,449,038, says Dun's Review.

During the early part of the year while there was some evidence of a reduction in commercial and industrial activity at a number of important points, the comparison with both 1913 and 1912 was fairly satisfactory, for the contraction at some cities was almost entirely offset by good gains at others, so that the falling off in the total for the first five months was very slight, while in June a tendency toward improvement appeared that became quite pronounced in July. Iu August, however, with the outbreak of the European war, there was a marked reversal in conditions, the interruption to foreign trade, the drastic decline in cotton, the closing of the principal exchanges of the country and the resultant check to general business being immediately reflected in sharply decreased bank clearings.

This depression continued until well into December, by which time the various exchanges had been reopened and there were indications of recovery, and though at the end of the year the volume of clearings was far below normal there was sufficient improvement to inspire considerable confidence in the future.

New York City reports decreases of 12.3 and 24.4 per cent, respectively, as compared with the two immediately preceding years, which might well be expected in view of the temporary embargo placed on foreign trade and the closing of the principal exchanges by the war, but taking into consideration the fact that there were no sales of cotton options for several months and that transactions on the stock exchange for the year show a falling off in value of approximately $4,000,000,000, the decrease in ordinary commercial operations was probably not so great as generally believed. Cities outside New York make a comparatively favorable exhibit, but while quite a number of centers show more or less improvement over one or both years, most of them report decreases, so that the total is 3.8 per cent smaller than in 1913 and 1.9 per cent less than in 1912.

	1914.	1913	Pct. Dec.
N. Eng.....$	8,922,003,374	$ 9,525,003,021	6.5
Middle	12,843,162,287	13,815,602,681	7.0
S. Atlan....	4,422,244,163	4,698,943,570	5.9
Southern ...	7,525,157,285	7,910,960,977	4.9
Cn. West...	22,858,896,326	23,285,524,717	1.8
Western	8,208,959,706	7,967,571,054	*3.0
Pacific	6,027,300,973	6,384,564,493	5.6
Totals ....$	70,807,724,114	$ 73,588,170,513	3.8
N. Y. City..	83,018,580,015	94,634,281,984	12.3
U. S.....$	153,826,304,129	$168,222,452,497	8.6
4th quarter ....$	468,924,000	$577,135,000	18.8
3d quarter	437,829,000	507,388,000	13.7
2d quarter	542,838,000	544,095,000	0.3
1st quarter	580,743,000	591,443,000	1.8

*Increase.

Although a number of cities in the central states make favorable returns, among them Detroit, Milwaukee and Toledo, decreases at Chicago, Cincinnati, Cleveland and other points, due to depression in certain industrial and commercial lines, result in some loss compared with last year. The figures in detail follow:

	1914.	1913	Pct. Dec.
Chicago ....$	15,692,828,996	$ 16,073,130,524	2.4
DETROIT ..	1,149,546,302	1,131,053,395	*1.3
Cincinnati ..	1,293,367,050	1,317,212,300	1.8
Cleveland ..	1,237,568,572	1,275,501,014	3.0
Milwaukee .	847,831,083	786,473,487	*7.8
Indianapolis.	404,612,127	432,452,386	6.4
Columbus ..	341,411,400	337,575,000	*1.1
Toledo	304,459,769	279,469,643	*8.9
Dayton	115,762,177	122,982,479	5.9
Youngstown.	76,422,335	82,978,542	7.8
Akron	89,711,000	96,120,000	...
Canton	79,703,507	77,722,808	*2.6
Sprin'ld, O..	40,731,332	37,320,953	*9.2
Mansfield ...	27,861,066	25,422,319	*9.6
Lima	25,004,056	25,883,836	3.4
Evansville ..	63,691,696	67,037,739	5.0
Lexington ..	37,117,646	45,701,100	18.8
Ft. Wayne..	66,518,201	65,002,707	*2.3
So. Bend....	78,643,923	27,388,000	*183.5
Peoria	173,103,643	188,537,195	8.2
Sprin-ld, Ill.	59,113,900	57,883,627	*2.2
Rockford ...	47,307,653	50,889,489	7.1
Bloomin'n ..	36,036,273	36,827,855	2.1
Quincy	43,069,944	42,564,722	*1.2
Decatur	24,193,165	26,751,889	9.6
Danville ...	24,233,134	24,344,040	4.6
Jacksn'vl ...	14,598,152	17,626,445	17.2
Gd. Rapids..	168,038,755	170,674,607	1.5
Kala'azoo ..	30,113,369	38,050,369	20.9
Jackson	28,321,998	28,085,318	*0.8
Lansing	25,942,502	23,811,164	*9.0
Ann Arbor..	12,031,630	11,012,016	*9.3
Cn. West...$	22,858,896,326	$ 23,285,524,717	1.8

*Increase.

Supreme Court Suggests Amendment to Bank Laws

The supreme court in an opinion regarding the rights of private banks over incorporated banks in taxation matters, has called the particular attention of the legislature to an apparent discrimination in favor of the former.

Almost in so many words the solons are notified that they should change the laws so that the discrepancy will not be possible.

The case was that of the Bank of Tustin, of J. M. Perry & Company, against the township of Burrell, Osceola county. The plaintiff bank was a private bank and was assessed by the township assessor for $10,000, "personal bank stock."

The board of review decided this correct, although the bank alleged that inasmuch as it had $17,000 in mortgages and land contracts on which it paid a specific tax, it was exempt from paying the tax on the $10,000, under the specific mortgage tax law of 1911.

The bank paid the tax under protest and brought suit.

It won in the court below, and the township appealed, setting up that the bank had no rights to exemption that were denied to regular incorporated banks under the state law. The bank contended that as a private bank it was entitled to the same exemption as an individual and the supreme court agrees with it.

Justice Steere, who wrote the opinion, hands the matter over to the legislature in these words:

"The contention that plaintiff is not entitled to the benefit of this law because incorporated banks under the law applicable to them are precluded from availing themselves of it, and as a result private banks have a decided advantage over incorporated banks in loaning money on mortgages and contracts, is an argument, and properly, appealing rather to that branch of the government which makes and repeals the law than to the courts. The plaintiff's general rights and duties are the same as any private individual who might engage in the banking business.

"In the application of this law we conclude that no controlling distinction can be drawn between plaintiff and any private person who has invested in such securities, and as the law now stands we are impelled to hold that the learned judge rightly construed and applied it."

SIX BANK STATEMENTS LAST YEAR.

Bankers are commenting on the fact that the call of the United States comptroller for a statement of condition of national banks, Dec. 31, was the sixth call issued in 1914, the preceding ones having been Jan. 13, March 4, June 30, Sept. 12 and Oct. 31. The national bank law requires "not less than five reports during the year." Never before has that number been exceeded.

Sales of the F. W. Woolworth Company for the year ending Dec. 31 were $69,616,775, an increase of $3,380,863, or 5.12 per cent, over the preceding year. The company's sales in December were $10,502,276, a decrease of $66,961, or .63 per cent, compared with December, 1913.

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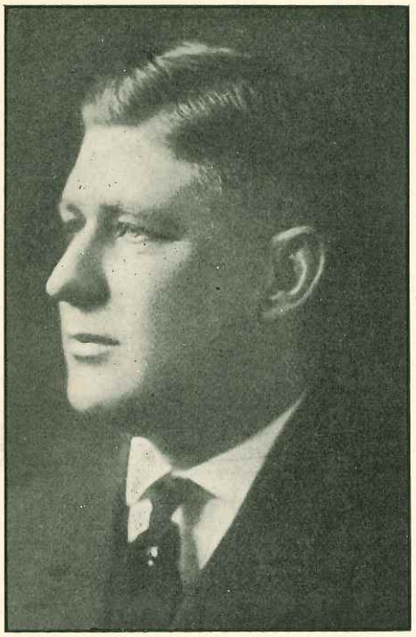

G. E. BLIEL,
Hupmobile Sales Dept.

GARVIN DENBY,
Denby Motor Truck Co.

D. C. RICHARDSON,
King Motor Co., Sales Dept.

Why the War Did Not Cripple Motor Trade

Discussing the agitation all over the country in favor of "made in America" goods, H. W. Ford, president of the Saxon Motor Company of Detroit, asserts that other lines of business may well profit from the experiences of American automobile manufacturers.

"One reason why the automobile industry was not crippled by the European war," says Mr. Ford, "is because American motor car manufacturers have got away from the idea that they are dependent upon Europe.

"American automobiles today are admitted to be just as good as foreign cars in quality. It is recognized also that because of better manufacturing facilities and bigger output the American builder of motor cars is in a position to give more value for the money than foreign manufacturers.

"Years ago our motor car builders depended upon Europe for ideas, both mechanical and artistic, and to some extent for materials. At first European builders set the pace. For a number of seasons American manufacturers were accustomed to look across the water for ideas. Within the past few years, however, the ingenuity, aggressiveness and resourcefulness of American motor car builders have asserted themselves. Today foreigners who visit the American modern automobile plant are fairly astounded at what they see, and freely admit that Europe can learn a lot from the United States.

"In my opinion the war abroad is a blessing in disguise, because it should teach American business to be ready for an emergency, and to be independent of the products of any other country by reason of making goods better ourselves.

"So far as the automobile prospects for the coming year are concerned, the outlook was never so bright, and the makers whose cars best supply efficiency and economy are going to get the cream of the business."

MICHIGAN SPORTSMEN TO MEET.

The annual meeting of the Michigan Association of Sportsmen will take place at Lansing, Jan. 27 and 28. A banquet will be served the evening of the 27th at the Hotel Downey, to be followed by talks illustrated with pictures of life in the open. W. B. Mershon, of Saginaw, is president of the association, and the membership includes many prominent men interested in the conservation of wild life.

At the Lansing meeting there will be exhibits by the public domain commission, the game warden's department, the state fish commission, the agricultural college, dealers in sportsmen's goods, etc. Gov. Ferris and other state speakers are expected to address the meeting.

METHODS OF TESTING DIAMONDS.

Marvelously beautiful as are the imitation diamonds of today, an experienced eye never mistakes them for the genuine article.

The average person, however, can easily be deceived, and the following simple tests should assist him when striking a bargain. The facets on a real diamond are rarely so regular as those of really good imitations. With the latter the greatest care has to be taken in grinding and polishing so that there shall be no irregularity in the reflections of the light.

A file cannot scratch a real diamond, but quickly injures an imitation. A sapphire is the next hardest stone to a diamond and is an even better test than the file.

Thrust a diamond ring into a bowl of water and the stones will glitter through the liquid, but an imitation stone loses all its brilliancy under water. If you look through a diamond at a black dot on a piece of white paper you will see one black speck quite clearly. If the dot is blurred or multiplied the stone is probably not genuine.

Place one drop of water upon the face of a diamond, touch it with a point of a pencil—the drop will keep its globule form and the stone remain dry. If the brilliant is an imitation the water at once spreads out.

ORGANIZE TO MARKET FRUIT.

Several prominent fruit growers of the Fennville section of the state are planning to form a stock company and build a large cold storage plant for apples and other fruits, also an extensive packing house. J. A. Barron, their present shipping agent, will be general manager.

During the last third of 1914 there were 588 cars of fruit shipped over the Pere Marquette Railroad from that station. About the same amount from there went over the boat lines from Saugatuck, Douglas and Pier Cove. It is said that neither the express nor the railroad company made any effort to get the Chicago consignment business and many growers hauled their fruit from five to eight miles to the boats and claimed that they saved money by so doing.

WILL SWITCH FROM MINT TO BEETS.

Several of the extensive peppermint growers of Fennville and vicinity will turn their attention to the growing of sugar beets the coming season. About 1,000 acres will be planted by farmers there and in Pearl. The A. M. Todd Company expects to grow about 200 acres. The soils formerly used for growing peppermint are ideal for sugar beet culture. The low price received for mint oils for several seasons is mostly responsible for the change to sugar beets.

MID-WEST CEMENT SHOW.

The ninth annual mid-west cement show will be held at Omaha, Neb., March 2 to 6, under the auspices of the Mid-West Cement Users' Association. The convention of cement users, for which a program of papers already has been arranged, is scheduled for March 3, 4 and 5. Further information regarding the convention and show may be had from Frank Whipperman, secretary and treasurer, Twenty-eighth avenue and Sahler street, Omaha.

SPRINGS NEED ATTENTION.

Because riding over frozen ground such as is encountered in the fall is exceedingly hard on the car, it is a good plan at about this time of year to go over the springs very carefully. All clips should be bolted up tight, the shackle pins inspected, cleaned and lubricated, and the leaves should be cleaned and "doped" with graphite grease. If this is carefully done it will be found that the machine rides much easier and also that it will not deteriorate so rapidly.

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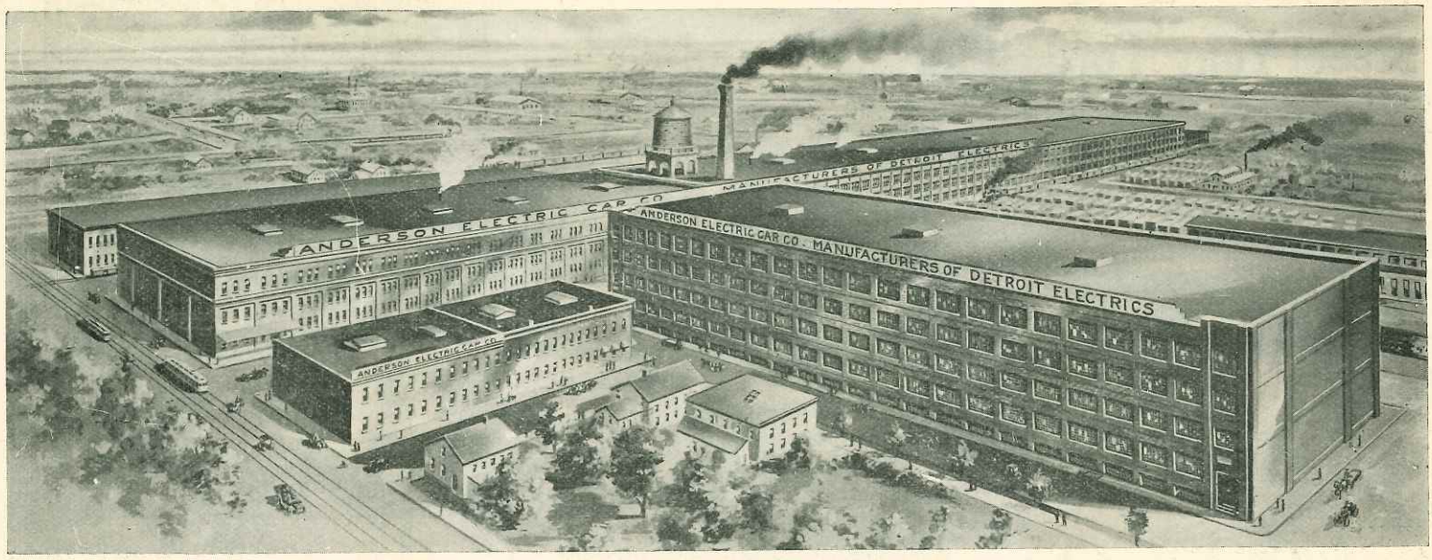


PLANT OF ANDERSON ELECTRIC CAR CO., DETROIT.

Beautiful Bodies on New White Cars

Body design of a distinctive and beautiful type, presenting a new conception of the streamline principle and abounding in exclusive features, create unusual interest in the new series of cars announced by the White Company of Cleveland.

Although each model shows many mechanical refinements, the new cars are particularly notable for the marked individuality of their bodies. The beauty of form, the richness of finish and equipment, and the correctness of fashion have been expressed so harmoniously and in such creative treatment as to portray the craftsmanship of the custom builder.

PAUL H. DEMING,
White Motor Co., Cleveland, Ohio.

The new cars consist of two four-cylinder models of 30 and 45 horsepower respectively and one six-cylinder model of 60 horsepower, and this latter model, the well known White Six, will henceforth be reserved to custom trade exclusively. Several new body types have been added to those previously offered, giving a wider range of choice than ever before.

Besides the usual touring and roadster models there are included semi-touring, sedan, town car, landaulet-limousine and limousine types. The standard models of the "30" will comprise a five-passenger touring car, three-passenger roadster, four-passenger sedan and six-passenger town car. The standard types of the "45" will consist of a touring car, semi-touring car, landaulet-limousine and limousine, all built for seven passengers. Any of the various bodies will be custom built for the White Six.

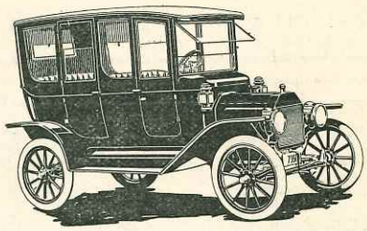
While the price of the White Six will be subject to the variation of custom patronage the prices of the Thirty ($2,700) and the Forty-five ($3,800) are slightly higher than the corresponding previous models, the difference representing the cost of equipment not heretofore included in the list prices of the cars. All of the new models will be sold fully equipped and the equipment is deserving of especial mention.

In addition to the White electrical system of starting and lighting, which has been retained for the fourth year, the cars are equipped with the White Mono-top, an improved type of one-man top, covered with English Burbank and enclosed in a boot of the same material; side curtains of the quick-acting type; special White windshield of the rain-vision, ventilating type, without fillerboard and with the glass conforming to the curve of the cowl; Silvertown cord tires, speedometer set flush with the dash; one-movement trunk rack; tire holders; license brackets; concealed electric warning signal and full complement of lights, with extension lamp; power tire pump, etc.

In the new cars the White designers have conceived a new type of body which absolutely forecasts the fashion of the future. While the lines are of pure streamline form, the bodies are strikingly different from the many so-called streamline bodies.

The new design is featured by two separate cowls and is entirely devoid of all angles, or even sharp curves. There is not a single straight line in the entire body. The top line of the hood and the upper line of the body are pleasingly merged in the front cowl in a gentle curve, and even the backs of the front seats, always awkward in appearance, are gracefully absorbed in the second cowl. Abruptness is found nowhere.

Practically every detail of body design and treatment has been given a touch of exclusiveness. The upholstery introduces a new standard for depth, treatment and materials. The seat-cushions of the Thirty are 12-inches deep, and in the Forty-five and Six are 14 inches. Instead of the customary diamond-shaped, or criss-cross tufting, the White cushions are built up in parallel tufts which make them more



Q-D ENCLOSED BODY

We are showing, for the first time in Detroit, our highly efficient enclosed Sedan top made especially for Ford cars. Up to now this product has been sold for $190 retail.

Special Show Price

$147.50

We have sold these bodies throughout the country and introduced them everywhere, except Detroit.

We will give you prompt deliveries; in fact, we guarantee to equip body on your car in one day.

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In other words, "make your Ford walk the chalk line" with a L-A Steady Steerer.

A Ford owner knows that under some conditions driving is very uncertain. He may find that his car wishes to take to the sidewalk in turning a corner; it may want to leave the road when traveling at the rate of 25 miles per hour; it may cause him trouble in going over rough roads. The L-A Steady Steerer remedies these troubles and makes your Ford steer like a Packard.

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FOR FORD CARS

It can be installed in 15 minutes. If not obtainable at your dealer's, send $2.00 and receive one direct from the factory with instructions for installing.

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In the nursery, living room—any room throughout the house, Luxeberry White Enamel adds a touch of brightness and beauty.
And for floors use Liquid Granite, the durable, lustrous varnish, never harmed by water or the hardest sort of wear.
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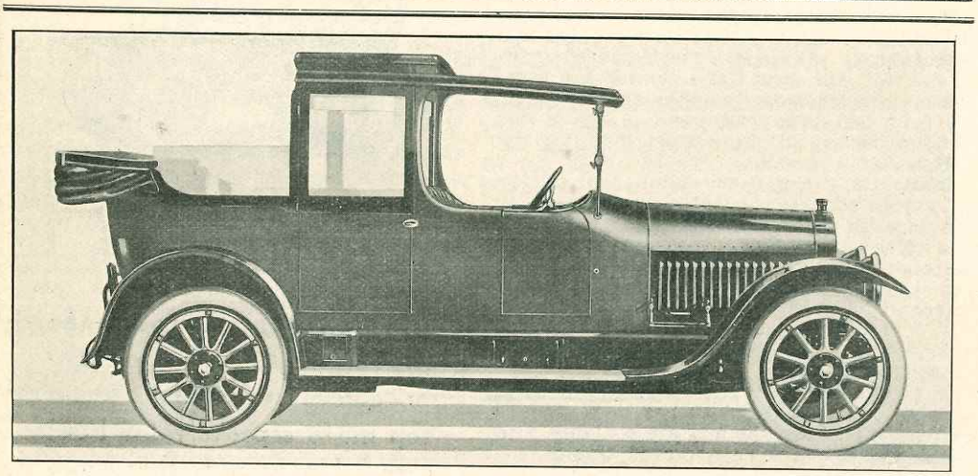
(INCORPORATED)
World's Largest Varnish Makers



FASHIONABLE LANDAULET-LIMOUSINE OF THE WHITE COMPANY

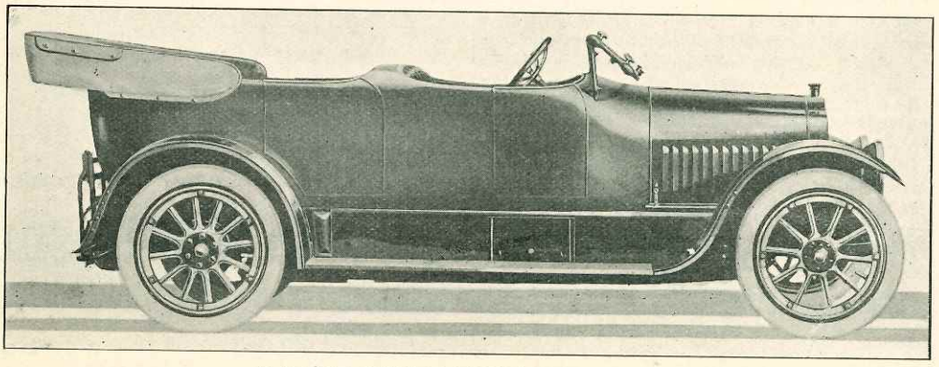
yielding and add to the symmetry of lines within the body. The leather is likewise new, being of an exclusive long-grain pattern used in White cars only.

All surfaces inside of the body are upholstered or leather-lined except the dash, door mouldings and the compartments beneath the center cowl. No upholstery appears above the top line of the body, so that the finely finished edges of the body are left uncovered, revealing the cunning work of the body craftsman.

Convenient arm rests, built at a comfortable height and softly upholstered, are at the sides of the rear seat in the larger two models.

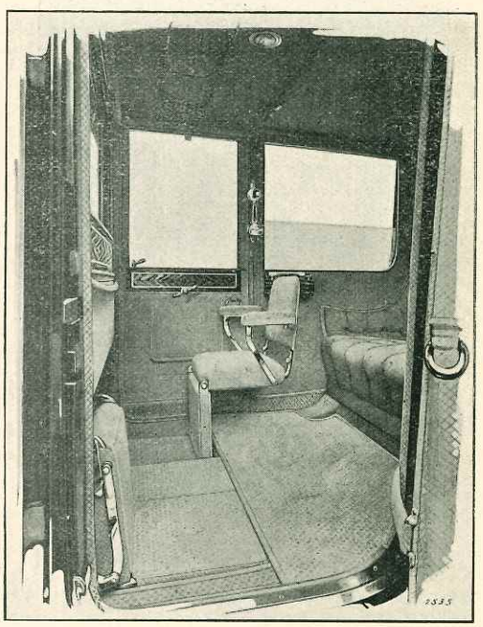
Beneath the top of the center cowl in the Forty-five and Six are two compartments, with clock set flush between, finished in French walnut. Below these compartments is a recess for the folding chairs, which fold flush with the tonneau floor, and are absolutely out of the way when not in use.

No exertion whatsoever is required to bring these seats into riding position. A slight pull will unfold and place them in their proper position, and a slight push folds them completely into the recess designed to receive them.



LATEST WHITE TOURING CAR

The Thirty throughout is practically a smaller counterpart of the larger models. The tonneau is fitted with an extra folding seat which is placed on the left side and which,

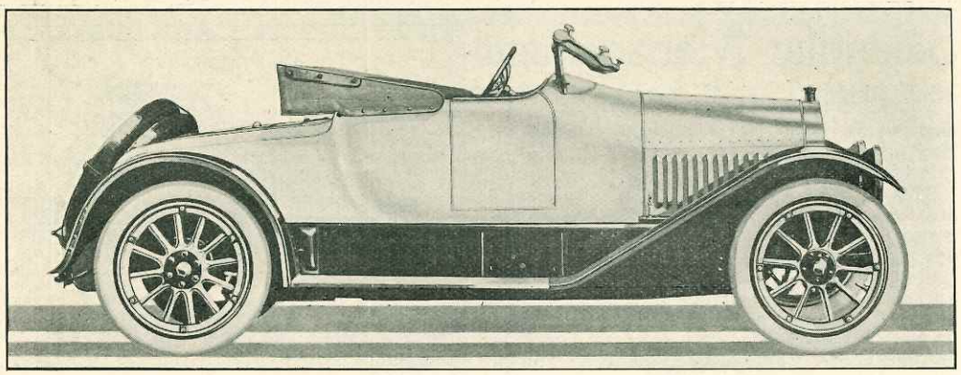


INTERIOR VIEW WHITE LANDAULET

when not in use, can be removed and placed in one of the cabinets under the center cowl. When this extra seat is not desired by the purchaser, $50 is deducted from the price of the car.

The two seats in the driving compartment are divided, yet the division is not pronounced. The driver sits at the left with the gear-shifting lever within easy reach of his right hand, while the emergency brake lever is placed at his left, out of the way, yet quickly accessible when needed.

An important refinement is the unified control system on all models. The starting and lighting switches are contained in a small, com-



WHITE THREE-PASSENGER ROADSTER

pact cylinder, mounted just below the steering wheel, on the upper side of the steering post, so that the driver can reach them without leaning forward. The electric signal button is located on top of the steering post, above the wheel. Consequently the dash is absolutely clean.

Space for carrying tires has been provided on the left runing board, well forward of the driver's seat. The tires rest in an upright position in a depression that is countersunk in the running board and front fender. Tool boxes are built into the apron between the running board and the body, one on each side of the car, and are reached by opening a hinged door, provided with locks.

One of the noticeable features of the new cars is the use of a dropped frame and underslung rear springs on the Forty-five and Six, making all of the new models extremely low, but without any sacrifice of clearance. This design, in conjunction with the use of long, diamond-end springs, has added materially to the well-known comfort of White cars.

Among other improvements are shorter turning radius, lighter weight, due to the use of special steels and aluminum alloys; larger radiators, to harmonize with the sweeping lines of he body; longer wheelbase on all models; vacuum feed system of gasoline supply; improved type of White carburetor; wide crowned fenders; improved fender supports, brake equalizers, clutch brake, clutch release, gear shifting lever, emergency brake lever and hot air "stove" on the exhaust. The improvements even include newly designed spark and gas levers, quadrant and accelerator pedal.

TROUBLE WITH VALVES.

If the exhaust valves require grinding oftener than once a season it is usually a sign that they are not seating properly because insufficient clearance has been left between the end of the stern and the lifter. Over-lubrication, or the use of an improper grade of oil, habitual running on a very rich mixture and very late ignition, are other causes that may lead the should. Whenever, in a car of modern build, it is found that compression is poor because of faulty valve seating, the cause of this condition should be sought and eradicated before the difficulty itself is attended to.

LAND AND WATER CYCLE.

France held not long ago a water gala, in which was a competition for land and water cycles, but these machines could not be used on water until they were partly dismantled. It has been left to an Englishman, H. G. Belbin, a Battersea workingman, to invent a machine that can be ridden on land as well as water without any adjustment. It is supported in the water by two hollow wooden floats, treated inside with tar to render them waterproof, which are adjusted by means of ribs fastened to a horizontal bar on the frame, just far enough apart to allow of free pedalling movement, and high enough to keep clear of the ground when being ridden on land.

The driving power is supplied as on an ordinary cycle for land riding, and on water by an endless chain running over the driving wheel and on to a projecting framework to a gearing which drives a small two-bladed propeller.

The steering is controlled by a shaped piece of metal fastened to the front forks, one rib on each side of the front wheel. Recent demonstrations have proved that the machine is perfectly safe and tractable on both land and water. H. G. Belbin cannot swim a stroke, but he was so confident of the success of his machine that he crossed and recrossed the Thames.

FORD MAINTAINS BIG SCHEDULE.

The Ford Motor Company reports that in the four moths ending Nov. 30, 74,906 Ford cars were sold and delivered. This demonstrates that the Ford schedule of 300,000 cars for the year is being maintained. The Ford Company says that more than 660,000 Ford owners are spreading the news that a Ford is never idle; that its service is never interrupted, and that consequently the owner's time is never lost. Another interesting Ford conclusion is that the Ford is recognized as a general utility. It has been estimated that in this aspect and capacity, the Ford has one-third greater diversity of uses than any other car in the world.

MENDING UPHOLSTERY.

If you will use soft yarn instead of hard-woven thread in mending tears in leather or mohair cloth, the stitches will not tear out quickly.

The People's State Bank

Cor. Fort and Shelby Sts.

Accounts of Banks, Bankers, Firms, Corporations and Individuals Received.

Interest Paid on Savings Deposits

Safe Deposit Vaults

Resources Over Forty-Five Million Dollars

Wayne County and Home Savings Bank

Capital.....$2,500,000.00
Surplus..... 2,500,000.00
Undivided Profits Over..... 700,000.00

THIS BANK OFFERS COMPLETE BANKING SERVICE

It maintains 15 Banking Offices Covering the entire City for the convenience of its patrons.

NEW COMMERCIAL AND SAVINGS ACCOUNTS INVITED

Main Office, Hammond Building, Corner Griswold and Fort Street West.

In This Age of Reciprocity

the business man prefers the bank which remembers and performs its obligations to the public from which it draws its support.

Fully appreciative of these obligations, the National Bank of Commerce strives in legitimate ways to co-operate with the business interests, large and small, of Detroit and Michigan.

Extending all the facilities offered by a conservative and progressive institution.

THE NATIONAL BANK OF COMMERCE of Detroit

Two Chief Factors in Scientific Management

By JAMES E. MORRISON

The various apostles of the efficiency creed —the fathers and originators of the scientific management doctrine—have persistently burned the midnight oil, the while they laboriously concocted a list of principles the application of which would, in their opinion, insure to any firm the tremendous benefits of scientific management. The "fathers" might have embraced an excellent opportunity to exem-

JAMES E. MORRISON

plify the gospel of efficiency by covering the whole subject with two simple but incontrovertible principles, ANALYSIS and COMMON SENSE.

That plant is being managed scientifically whose problems are being carefully analyzed and the findings thereof acted upon with common sense. No plant can wholly meet these requirements; every plant can meet them to a reasonable degree; few plants are meeting them either to a reasonable or tolerable degree; innumerable plants imagine they are meeting them to a considerable degree when they are not.

The manager of every manufacturing concern has to solve the problem of choosing assistants to effect his organization; of selecting employes to man the machines; of determining the nature and sequence of the various operations on the product; of developing a rational routing system in the shop; of instituting safeguards to protect the concern against thefts of time by its employes; of providing an incentive to labor to give the best it has. Each of these problems is important, the last two mentioned especially so, and yet common sense is lacking to a greater degree in the handling of these last two problems than in all the others combined.

Careful analysis will show the maximum amount of a certain piece of work that a first-class workman, provided with the best available equipment and properly supported by the shop organization, can perform in one day. Futher analysis and the use of a fair amount of common sense will enable the management to determine how much of this maximum performance a good, average workman can accomplish without undue physical or mental effort. Common sense will suggest the establishing of a standard of accomplishment on this part of the work and will insist on the selection of the type of workman that can attain this standard.

This is what engineers refer to as the standard time plan for measuring an employe's permance and this plan acts as a safeguard to protect the concern against thefts of time by its employes. Furthermore, it is the only safeguard that is known at the present time. The employe who delivers only six standard hours of work in a ten-hour day robs his employer of four hours' wages and in addition "plugs" his expense account to an amount equivalent to four hours of the burden rate that falls on the production center he is occupying.

Common sense will compel a careful analysis of the cause for any theft of time by an employe. Analysis may show that the employe is not the physical type to perform the class of work he is called upon to do; common sense will suggest his transfer to some other class of work for which he is physically fit. Analysis may reveal the fact that the work calls for psychological requirements which the employe is not mentally adapted to meet and his transfer is again the action demanded by common sense.

Analysis may further show that the equipment provided by the management is at fault; that the planning and routing system designed by the organiaztion is weak in that it fails to keep the work up to the employe; that previous operations, improperly passed by careless inspection, have affected the product so as to seriously interfere with the execution of the operation in hand. In each of these cases analysis will point to the reason, further analysis and common sense will dictate the remedy. When the reason is found to be ignorance, inaptitude or lack of skill on the part of the employe, common sense will suggest instruction and demonstration.

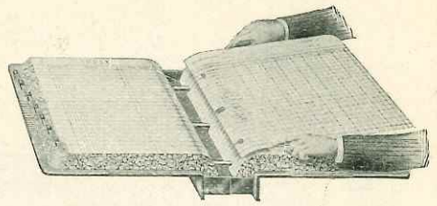
Analysis will very frequently disclose the fact that apathy or indifference on the part of the employe is the reason for his theft of time. Common sense will immediately suggest the provision of an incentive as an antidote for this condition and will quickly perceive that an increased wage rate is the greatest of all incentives. Very careful analysis and much common sense can be used with considerable profit in determining the basis on which this wage rate is to be increased.

Since analysis has already shown that lack of co-operation on the part of the shop organization is a greater factor in causing low efficiency of labor than lack of interest or willingness in labor itself, common sense will demand some plan that in addition to providing an incentive to labor will impose a penalty on the firm if labor fails to attain standard. This can be accomplished by guaranteeing to labor a fair day wage, this day wage to begin increasing as labor passes a certain point in its efforts to reach standard and to continue increasing after standard has been reached and passed.

It can be seen that when labor is permitted to retain its regular day wage regardless of how low its efficiency may be, the penalty imposed on the firm will consist not only in the loss of the burden rate but also in the loss of the wages drawn by labor for each hour it may fall below standard. Common sense will compel co-operation on the part of the firm's shop organization to keep this penalty down to the minimum, and labor, soon realizing that the organization is honestly endeavoring to assist it to draw higher pay, will quickly respond.

STREAKS IN TOP LINING.

A dingy dust color in streaks makes a top lining look anything but ornamental. Turn the top upside down, and with a brush apply analine dye of proper shade to secure a uniform and good color.



You Must Admit

Eighteen forty-two is some time ago, but that is the year we started to make good account books. We have been at it ever since, making loose leaf binding devices and ruled forms that furnish the greatest possible efficiency. Send us your factory or office form for estimate and ask for our handsome loose leaf catalog No. 26.

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Chalmers

MOTOR CARS

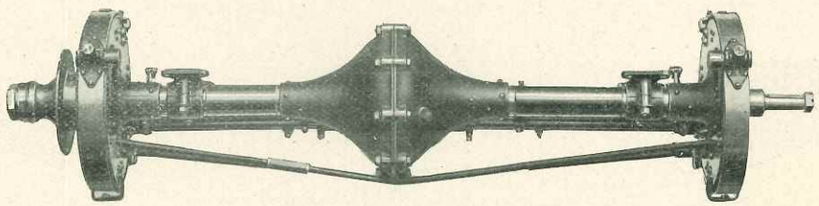
"Master Six" 7-Passenger.....$2400
"Master Six" Torpedo, 5-Passenger.$2400
"Light Six" 5-Pass. Touring Car $1650
"Light Six" 6-Pass. Touring Car...$1725

F. O. B. Detroit

All bodies interchangeable.
Five wire wheels $80 extra

Chalmers Motor Co., Detroit, Mich.

WESTON-MOTT
AXLES
FLINT, MICHIGAN



Weston-Mott popular model for five-passenger, 25 to 30 h. p. cars, weighing from 2300 to 2600 pounds

Construction is regular Weston-Mott standard, three-quarter floating, on Hyatt bearings. The axle shafts are chrome-nickel steel, double heat-treated.

The illustration shows the axle built for Hotchkiss drive, but it can be furnished with either long or short torque member and any type of drive that the car manufacturer might specify.

This model is the great bulk of our production, and has been thoroughly tried out, as we have been manufacturing this type for a number of years. It is at present being furnished to such companies as the Buick, Oakland, Oldsmobile, Empire, Allen, Touraine and Inter-State companies.

MOTOR TRUCKS IN EUROPEAN WAR.

Trains of motor trucks are the principal means of transportation of the supply department of the German forces operating in the eastern theater of war. The territory in which the campaign is at present carried on has been occupied and evacuated several times by the Germans and Russians in turn, with the result that the railroads are now no longer in existence. What the Russians did not tear up on a retreat the Germans destroyed when they had to leave the district.

Bridges and culverts were dynamited, embankments levelled, rails removed and stations wrecked.

Under these circumstances another means of transportation had to be used by the Germans. Already, the value of the motor trucks had been learned, in the campaign of Belgium, and when the forces under Field Marshal Von Hindenburg advanced again from their railroad bases in East and West Prussia and Silesia, it was decided to use the motor truck. Large contracts were let for the manufacture of a type of motor truck, which had been tried out in recent maneuvers.

The trains formed by these trucks must be counted in hundreds. A supply officer said yesterday that possibly there were more than 400 such trains.

The trucks have rather low and broad platforms, and are moved by gasoline engines of 80 to 100 horse-power. Each truck has a trailer, which may be abandoned if necessary. Where the roads are good, or when straw and hay or other bulky supplies are moved, a second trailer is hitched on, and sometimes a third. The motor is able to move eight tons of freight at a speed of six to 10 miles per hour, according to the roads.

A motor truck train, or column, consists of 16 freight trucks and their trailer, one automobile and four conveyances for the escort. The automobile, in which travels the officer in command of the column, two escort men, and a machinist, heads the column. Then comes one of the escort trucks with about 30 soldiers.

On this travels also the engineer officer of the column. Then come the 16 freight trucks and their trailers, the rear being brought up by three other escort trucks, on one of which travels the chief mechanician. Each truck and car has its own machinist and a number of spare parts.

To make possible the operation of those trains the Germans have had to build many miles of roads in Russian Poland. The Germans prefer to use the roads instead of railroads, which in Russian Poland are few and far between.

It is well known that the motor truck is responsible for many German successes in the east. The numerical superiority of the Russians has been discounted only by the quick distribution of reinforcements. Without the motor truck this would have been impossible, it is asserted.

Now and then a motor truck column is attacked by a small force of Cossacks. A lively scrimmage results as a rule, and the Cossacks are said to have lost generally.

AN OIL THAT MIXES WITH WATER.

The Ulco Oil Company, of 345 Bellevue avenue, Detroit, needs no introduction to the manufacturing public as their product, "Nagle Soluble Oil," has been on the market for a number of years and has always given eminent satisfaction to the users.

The merits of "Nagle Soluble Oil" are too well known to need further comment, it being a revelation in cutting oil, cutting the hardest steel, and your highest bill. This is the only oil, it is claimed, forming a true solution, all others forming emulsions. This oil can be used for difficult work on automatic screw machines, semi-automatic and hand screw machines and turret lathes.

The staff comprises J. Winford Nagle, president; Ansley D. White, vice-president and sales manager; and Hal. David Cady, secretary and treasurer. Their factory facilities are unlimited, and every order, whether small or large, is given prompt personal attention.

OLDSMOBILE AGENCIES INCREASE 700 PER CENT.

Basing his statements upon audited sales statistics, J. V. Hall, Oldsmobile sales manager, says that during the last period of 1914 the Olds Company established remarkable sales records. Hall asserts that on Dec. 1 there were hundreds of orders on file for future delivery and the plant found it necessary to maintain its increased production schedule in the dead of winter to meet the requirements of dealers.

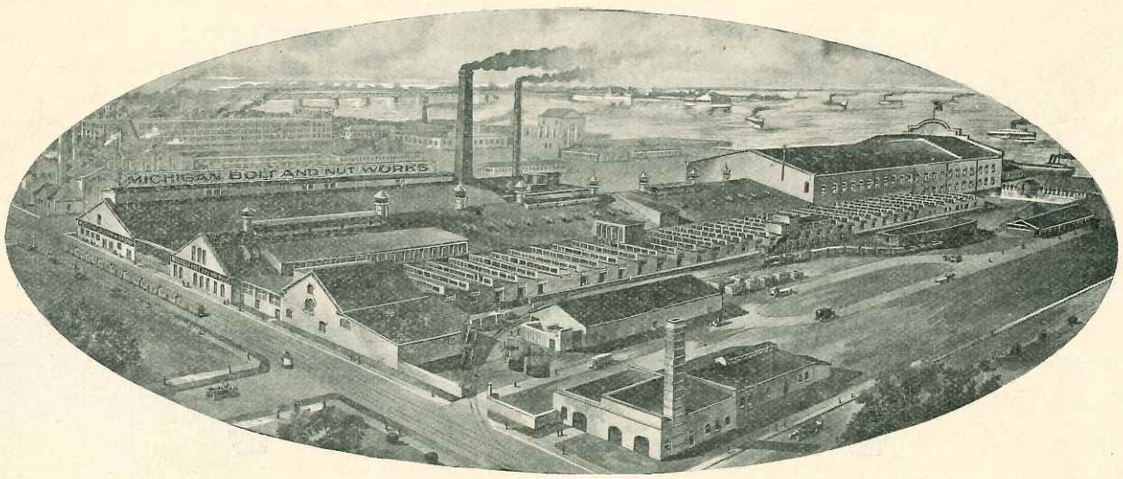
The Olds Company, he says, in one year increased the number of its dealer connections by more than 700 per cent, and concludes that this record was made possible by the popularity of the four-cylinder car, since a large proportion of the dealers obtained were appointed after the announcement of the new model Oldsmobile was made public.

As to actual sales of cars, Mr. Hall declares that between Aug. 1 and Dec. 1, 1914, his company delivered 624 per cent more motor cars than during the same months in 1913.

In New York city he notes an increase in cars delivered of over 540 per cent between Aug. 1 and Dec. 1, 1914, over the same period of 1913; in Chicago an increase of 330 per cent; in Los Angeles, 200 per cent; in Detroit, 150 per cent; in the state of Pennsylvania, 391 per cent; in Ohio more than 500 per cent; in California, 417 per cent.

H. J. Dove, recently appointed western representative of the Briggs-Detroiter Company, is bound for the Pacific coast and will make his headquarters in San Francisco. Mr. Dove has represented the Haynes Automobile Company and the Havers Motor Car Company in the past along the Pacific coast.

Bolts
Nuts
Forgings
Drop Forgings
Washers



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Estimates Cheerfully Given

OFFICE AND PLANT

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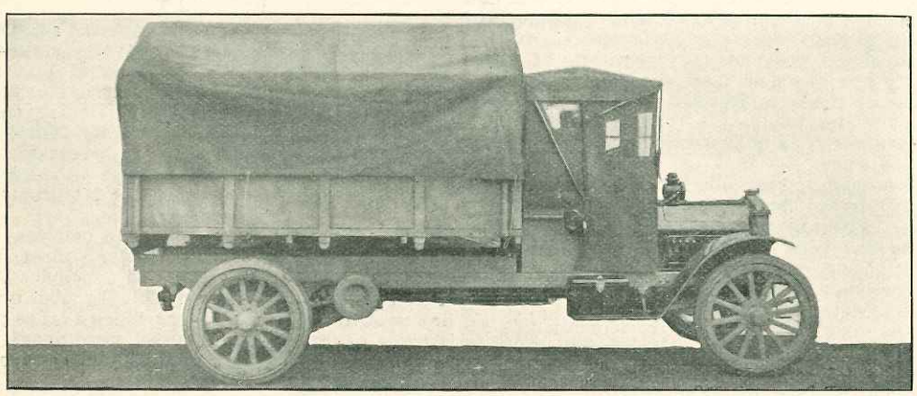
The Growth of Federal Trucks

By M. P. Pulcher, Vice Pres. and Gen'l Mgr. Federal Motor Truck Co.



A TWO-TON CAPACITY FEDERAL TRUCK

The year 1914 was a very successful one for the Federal Motor Truck Company. The second year in the history of Federals, showed an increase of 412 per cent over the first year, which necessitated moving to the new large and modern factory where the company is now located. The third year showed another increase of over 60 per cent above the big second year's production, and in this, the fourth year, it has made a remarkable showing.

It is interesting to note that while the production increased, and while improvements made on the truck have necessitated an expenditure of more money on the truck itself, still the cost of production and general expenses were reduced considerably.

This interesting fact is explained by various conditions that have developed during the past year. In the first place, during the past half year there has been a big change in the personnel of the company. I have been greatly pleased with results secured by the new organization, who have proven, to the man, to be hard, earnest, brainy workers.

A more efficient arrangement of machines throughout the factory and a complete overhead carrying system has enabled much more work to be accomplished by each individual man.

A large addition to our testing and repair plant has relieved congestion throughout the main factory and this has aided materially in the greater production at less cost.

But the thing that has contributed most to this excellent condition at the Federal facory, is the profit-sharing plan which was inaugurated at the beginning of the year 1914. The plan has proven to be a huge success. All those on the payroll, office and factory, were presented an amount equal to about 10 per cent of their yearly wage. There was a real Xmas spirit at the factory on the afternoon before Christmas, and the thousands of dollars handed to the employes as a bonus, together with the wholehearted talks by Mr. Pulcher in presenting the bonus, have filled the men with a happiness that will show itself all through the year in earnestness of work.

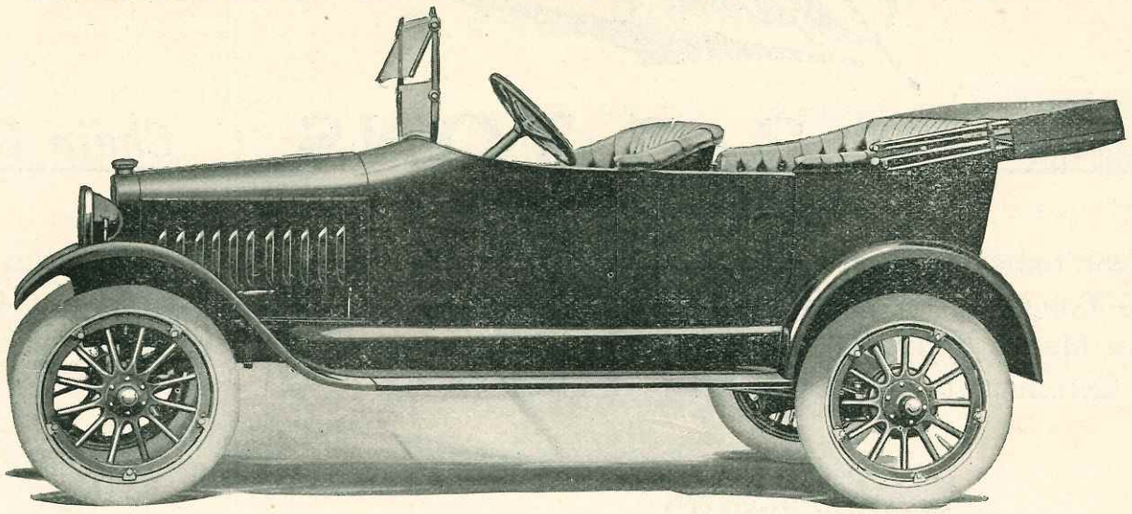
The large foreign orders received have helped out considerably in making this a good year, although domestic sales have kept up remarkably well too.

The real co-operation Federal dealers have received since the inception of the nw organization has been an important factor in holding sales up to normal. The best class of direct advertising on every important line of business has been used, to follow up extensive magazine advertising. In the face of general depression, the Federal Motor Truck Company saw the wisdom of increasing their advertising appropriation and their sales force and are accordingly approaching the general business boom—which we all have every reason to expect—with a strong business front.

The Federal's traffic investigations now being made in various lines of business are creating much interest and are of great value to motor truck dealers, prospects and truck owners, for real costs of truck operation are being compared with the expense of horse-drawn equipment—and in every case the horse has been found to be seriously expensive.

A big year is before us—all of us, in every line of business in the U. S. A.—and through the economical and efficient transportation offered by good motor trucks, business in general should be greatly benefited.

SAXON "SIX" $785

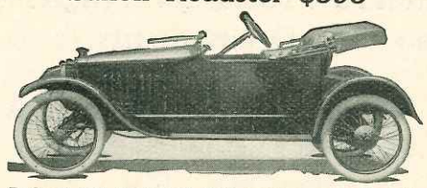


20 Reasons Why You Should See the Saxon "Six" at the Detroit Show

1. **First six-cyinder car** at a price as low as $785.
2. **112-inch wheelbase;** no other "Six" at less than $1250 has equal wheelbase.
3. **Unusual roominess;** Only one other car at less than $1250 has equal inside width of tonneau seat, and none has more.
4. **Gray & Davis electric starting** and lighting system as standard equipment.
5. **Long stroke, high speed motor,** developing 30-35 h. p.
6. **Three forward speed transmission,** sliding gear type.
7. **Tires generous in size,** 32x3½"; wheels artillery type, best grade hickory; rims demountable.
8. **Vanadium steel springs** of modern Saxon cantilever type, found elsewhere only on much higher priced cars.
9. **Full streamline body,** very graceful and pleasing to the eye.
10. **Left side steer,** with center control, affording greatest convenience in driving.
11. **Full Hyatt bearing** equipment throughout in rear axle.
12. **Atwater Kent ignition,** thoroughly proved.
13. **Dry plate clutch,** same type as on many higher priced cars.
14. **Standard or 60-inch tread.**
15. **Materials of uniformly high grade;** as good as high priced cars employ.
16. **Saxon the modern car** in every detail.
17. **Every feature tried and proved,** nothing freakish or experimental.
18. **Saxon "Six"** result of long time planning and much hard work. Car itself proved in many months of testing on the roads.
19. **Equipment includes,** in addition to electric lights and starter, speedometer, extra demountable rim; electric horn; one-man top; two-piece rain vision windshield; tire irons; foot and robe rails; license brackets, tools, etc.
20. **Company behind the Saxon "Six"** has complete and efficient organization and the reputation for giving high motor car value. It is amply financed and has plenty of factory space and facilities for rapid and good production.

To those who appreciate motor car excellence, the naming of the above Saxon features needs no elaboration. Experts who have seen this car and have gone over it carefully tell us that it marks a distinct advance in the history of the automobile industry, because it answers as no car before has done the demand for a **good, low-priced six-cylinder car.**

Saxon Roadster $395



Refined and improved, this popular car offers the greatest 2-passenger automobile value in the market. Wood or wire wheels optional. Electric lights and starter, $70 extra.

Saxon Motor Company, Detroit

Standard

Worm Drive 3--5 TONS *Chain Drive*

Don't miss seeing the exhibit of the new Standard 3-Ton Worm and Chain Drive and 5-Ton Heavy Duty Truck. Same standard quality and parts throughout: Continental Motor, Timken Worm and Chain Drive equipment. Brown-Lipe Transmission, Gemmer Steering Gear, Eiseman Magneto, etc.

Equipped with Hydraulic Hoist and Body for Contractors and Coal Companies.

SEE OUR EXHIBIT AT BOOTH 158-159

Standard Trucks rank highest in endurance and hill-climbing tests held by European War Departments.

Write for Catalog

Standard Motor Truck Co.

DETROIT, MICH., U. S. A.

THOMPSON AUTO CO., Michigan Distributors

Peninsular Machinery Lines Find Good Market

The Peninsular Machinery Company, recently organized, has opened offices and warerooms in the new Kerr Machinery building, corner Fort and Beaubien streets, where they are displaying a stock of machine tools built by the R. K. LeBlond Machine Tool Company, of Cincinnati, O.; the Rockford Machine Tool Company, of Rockford, Ill.; the Michigan Press Company, of Ypsilanti, and the Perkins Machine Company, of Warren, Mass., as well as a number of other manufacturers for whom they are Michigan representatives.

Mr. J. A. Flynn, the president of the Peninsular Machinery Company, was state salesman for the C. C. Wormer Machinery Company for a number of years, in which capacity he made a large circle of business and personal friends throughout the state. Mr. A. D. McElhose, the vice-president, and Mr. Frederick Eberle, the secretary and treasurer, was also connected with the Wormer Machinery Company. The former was at one time their store manager and later on was general sales manager. Mr. Eberle was their secretary and credit man. The above parties are all well known to the machinery trade.

The R. K. LeBlond Machine Tool Company's line of heavy duty rapid production automobile manufacturers' lathes, and millers and crankshaft lathes are used in all the large automobile shops throughout the country. Their construction is adapted for extremely heavy service. They also make a line of standard engine lathes, millers and cutter grinders.

The Rockford Machine Tool Company's planers, shapers and mechanics' drills are extensively used in the shops of the automobile industry in this territory.

The Michigan Press Company, which is the Michigan branch of the Perkins Machine Company of Warren, Mass., has placed a number of large presses in Detroit and vicinity, where they have been successfully operated in the manufacture of automobile stampings of all kinds. The Peninsular Machinery Company is their Michigan representative and carries a stock of their line on its floors.

New Corporation Formed to Manufacture Abbott Cars

The Consolidated Car Company, a new Michigan corporation, which has purchased the assets, good will and trade name of the Abbott Motor Car Company, is officered by R. A. Palmer, president; A. C. Knapp, vice-president; M. J. Hammers, secretary-treasurer and general manager. The A. C. Knapp Company plant on Lafayette avenue east and Meldrum avenue, Detroit, is being refitted and the manufacture of Abbott-Detroit cars by the company has begun.

The transfer of the property from the Abbott Motor Car Company to the Consolidated Car Company involved properties to the extent of approximately $500,000..

President Palmer is credited with the successful development of the Cartercar Company, of which he was general manager about five years. He has also been identified with the General Motors Company for a term of years as a prominent member of its managerial staff. In Detroit, Mr. Palmer is well known through his connection with the Palmer-Bee Company.

Mr. Knapp, vice-president of the company, will not be active in the handling of the new business, but his affiliations with the trade in connection with the manufacture of automobile bodies will add strength to the organization.

General Manager Hammers has been in charge of building and marketing Abbott-Detroit cars for several years. He was formerly general manager of the Jacobson Machine Manufacturing Company, manufacturers of automobile motors and axles, and still is a director and consulting engineer of one of the

Manufacturing a Commodity is Your Business

We are supplying a big percentage of Detroit's industries with our power to their satisfaction. We want to serve yours. Let us tell you what economies and advantages may be effected on **your** plant with **Central Station Service.**

Generating Power is Ours

The Edison Illuminating Company

LUXURY

The luxury or even comfort of any vehicle or piece of furniture depends upon "how it fits." The "fit" depends upon the upholstery. Correct upholstery depends upon the kind of springs or spring constructions used.

Luxury, comfort, durability are the essentials. The Jackson Cushion Spring Company, of Jackson, Mich., has made a study of these features for 15 years and during these years has developed an organization and equipment which in conjunction with the experimental department has not only enabled it to determine the best material, but to combine with the best material, a quality of workmanship that enables it to produce a product to meet every specific requirement, so that the use of its goods is a guarantee that "the upholstery is as good as it could be."

With spring experts at the head, efficient factory organization, ample floor space and a full quota of special machinery built for it, the Jackson Cushion Spring Company is not only able to take care of the largest orders, and the small orders, as well, but it can make prices so attractive that there is no need of using anything but the best in your upholstery.

Corrected Weekly By

Wm. A. Neer & Company

Ground Floor, Moffat Bldg., Detroit.

These yields are figured on the asked price of the DETROIT STOCK EXCHANGE quotations. Where there is no asked price, the bid is used.

Active Stocks.	Annual Div.	Par.	Yield
Acme White Lead & Color Works, Pfd.	6%	25.	8.57%
*American Light & Traction Com.	10%	100.	13.00
American Light & Traction, Pfd.	6%	100.	5.40
American Public Utilities, Com.		100.	
American Public Utilities, Pfd..	6%	100.	8.95
American Tele. & Tel. Co.	8%	100.	
Burroughs Adding Machine Co.	14%	100.	4.66
Chalmers Motor Co., Com.	10%	100.	11.36
Chalmers Motor Co.. Pfd.	7%	100.	7.56
Cities Service Co., Com. XD.	6%	100.	
Cities Service Co., Pfd.. XD.	6%	100.	
Commonwealth Railway Power & Light Co., Pfd.	6%	100.	7.54
*Detroit & Cleveland Nav. Co..	8%	50.	4.39
*Detroit Creamery Co.	8%	10.	3.72
Detroit Edison Co.	7%	100.	6.20
Detroit Iron & Steel Co., Pfd...	7%	10.	8.75
General Motor Co., Pfd.	7%	100.	7.64
S. S. Kresge Co., Com.	4%	100.	4.30
S. S. Kresge Co., Pfd.	7%	100.	6.93
Michigan State Tele. Co., Pfd..	6%	100.	6.80
Michigan Sugar Co., Pfd.	6%	100.	8.33
‡Miles-Detroit Theatre Co.	11%	10.	11.00
*National Grocer Co., Com.	4%	100.	5.93
National Grocer Co., Pfd.	6%	100.	6.45
Pacific Gas & Electric Co., Pfd.	6%	100.	
Packard Motor Co.. Pfd.	7%	100.	7.77
*Parke, Davis & Co.	16%	25.	3.54
*Reo Motor Car Co.	10%	10.	4.50
Republic Railway & Light Co., Pfd.	6%	100.	8.57
*Scotten Dillon	50%	10.	4.40
Southern California Edison Co., Com.	5%	100.	6.25
Trussed Concrete Steel Co., Pfd.	7%	10.	7.00
White Star Line	6%	50.	8.40
Fowar's Wayne County Creamery Co.	8%	25.	6.40

*Extra dividends also paid.
‡Approximate rate paid.
*Dividend paid in 1913.

BONDS.

Consumers' Power Co., 5s, 1937	5.75
Detroit & Flint-5s, 1921	6.25
Detroit, Ft. Wayne & B.I-5s, 1928	
Detroit, Monroe & Toledo Shore Line-5s, 1933	5.33
Detroit & Northwestern-4½s, 1921	
Detroit & Pontiac Ry.-5s, 1922	4.92
Detroit & Pontiac-4½s, 1926	
Detroit & Pt. Huron S.L.-5s, 1950	5.70
Detroit Railway-5s, 1924	5.38
Detroit, Rochester, Romeo & Lake Orion-5s, 1920	6.00
Detroit, Ypsilanti & A.A.-6s, 1917	6.00
Detroit, Ypsilanti & A.A.-6s, 1924	6.00
Detroit, Ypsilanti, A.A. & Jackson-5s, 1926	6.50
Detroit United Ry.-4½s, 1932	7.50
Detroit Edison Co.-5s, 1933	4.88
Detroit Edison Debenture-6s, 1924	5.00
Eastern Michigan Edison-5s, 1931	5.05
Detroit Gas Co. Consolidated-5s, 1918	4.70
Detroit City Gas Co., P.L.-5s, 1923	5.00
Detroit & Suburban Gas Co.-5s, 1928	5.80
General Motors Notes-6s, 1915	6.00
Michigan State Tele. Co.-5s, 1924	5.25
Michigan United Ry.-5s, 1936	6.90
Packard Motor Co.-5s, 1916	
Rapid Railway Co.-1st-5s, 1915	
Rapid Railway Co.-5s, 1916	8.00
Toledo, Fremont & Norwalk-5s, 1920	5.75
Wyandotte & Detroit River-5s, 1918	5.00
By-Products Coke Corporation-6s, 1920	6.40

largest producers of that line in the Pittsburg district.

E. F. Gerber, formerly principal stockholder in the Abbott Motor Car Company, will not be in any way connected with the new company.

D. E. Perry, purchasing agent, and F. E. Sangbush, service manager of the Abbott Motor Car Company, will be members of the new company.

The Consolidated Company did not have time to prepare for an exhibit at the New York show, but at the Chicago Coliseum show it will exhibit one of the present type six-cylinder cars. Another model will be exhibted at the same time, announcement of which has not yet been made.

Plans have already been put into effect whereby the Consolidated Car Company will handle the service business on Abbott-Detroit cars and maintain a selling organization.

Union Men Lose Danbury Hatters' Case

The Supreme Court of the United States has finally held that individual members of labor organizations may be held for triple damages in a civil action brought under the Sherman anti-trust law.

The case is a celebrated one—Loewe vs. Lawlor, or as it is more popularly known, the Danbury hatters' case. It is the second time the litigation growing out of the Danbury hatters' strike has been before the Supreme Court. In the first case the court held that a labor organization, by practicing a boycott, may be guilty of a conspiracy in restraint of trade under the Sherman law.

Suits were brought originally against 191 defendants to recover under the anti-trust act for alleged injury to the business of the employing firm of D. E. Loewe & Co., of Danbury, Conn., by a strike and boycott instituted and carried on by the United Hatters of North America, the union which was affiliated with the American Federation of Labor.

The case has been in the courts so long that eleven of the defendants died before the presentation of it in the highest court. Probably 180 defendants are involved in the judgment affirmed by the Supreme Court in the opinion read by Justice Holmes and concurred in by all of his associates.

Damages aggregating with interest about $260,000 are involved in the opinion. That at least part of the judgment will be collected is strongly intimated by counsel for the defense, because bank accounts and properly belonging to many of the defendants were attached under the garnishment process allowed by the Connecticut laws.

Daniel Davenport and James M. Beck were the leading counsel for the employing hatters. Alton B. Parker and Frank L. Milholland represented the defendant workingmen. The real parties to the action had little to do directly with the case as it made its progress through the higher courts.

Organizations of employers interested in the final settlement of a problem fraught with so much good or evil for the relations of capital and labor took up the cause of the employing hatters, and the American Federation of Labor came to the defense of the union hatters.

The defense of the hatters was that they as members of the union could not be held for any damages inflicted as the result of the boycott against the Loewe firm in the absence of proof of overt acts or direct responsibility. They denied that they could be made answerable for the acts of the officers of their union. The whole case turned upon this point, and the court decided it against the unions.

The effect of the decision on the fortunes of those directly involved was less discussed here than the possible bearing it will have on the power of the courts in the future to deal with the boycott and strike in view of the recently enacted Clayton anti-trust measure, which, according to the views of some legal authorities, legalizes boycotting and picketing.

If the new law declares such acts are not conspiracies under the anti-trust law it follows that there can be no recovery by employers in civil actions for triple damages. Many lawyers held, therefore, that the result attained could not now be achieved in an action growing out of the same state of facts brought since the passage of the Clayton bill.

That measure says, in the sixth section:

Nor shall such organizations (labor, agricultural and horticultural), or the members thereof be held or construed to be illegal combinations or conspiracies in restraint of trade under the anti-trust laws.

Another section of the Clayton acts reads:

And no such restraining order or indication shall prohibit any person or persons, whether singly or in concert, from terminating any relation of employment or from ceasing to perform any work of labor, or from recommending, advising or persuading others by peaceful means so to do; or from attending at any place where any such person or persons may lawfully be for the purpose of peacefully obtaining or communicating information or peacefully persuading any person to work or to abstain from working; or from ceasing to patronize or to employ any party to such dispute, or from recommending, advising or persuading others by peaceful and lawful means so to do; or from paying or giving or withholding from any person engaged in such dispute any strike benefits or other moneys or things of value; or from peaceably assembling in a lawful manner and for lawful purposes; or from doing any act or thing which might lawfully be done in the absence of such dispute by any party thereto; nor shall any of the acts specified in this paragraph be considered or held to be violations of any law of the United States.

These provisions were inserted in the Clayton bill at the instance of union labor leaders to free them from the very restraints and penalties which the court now holds were imposed by the Sherman law. It is clear that if the Wilson adminstration had not pushed this legislation through at the last session employers of laborers would now have impressive mean of protecting themselves against boycott losses.

Some authorities still contend, however, that the matter is an open question and will not be decided definitely until the Supreme Court passes on the Clayton law.

One feature of the decision does, however, seem to be of practical benefit to employers. The decision goes a long way toward establishing the principle of responsibilty by members of a union for the acts of their officers.

Justice Holmes said in his opinion:

"It requires more than the blindness of justice not to see that many branches of the United Hatters' Union and Federation of Labor, to both of which the defendants belonged, in pursuance of a plan emanating from headquarters, made use of the primary and secondary boycott in their effort to subdue the plaintiffs to their demands.

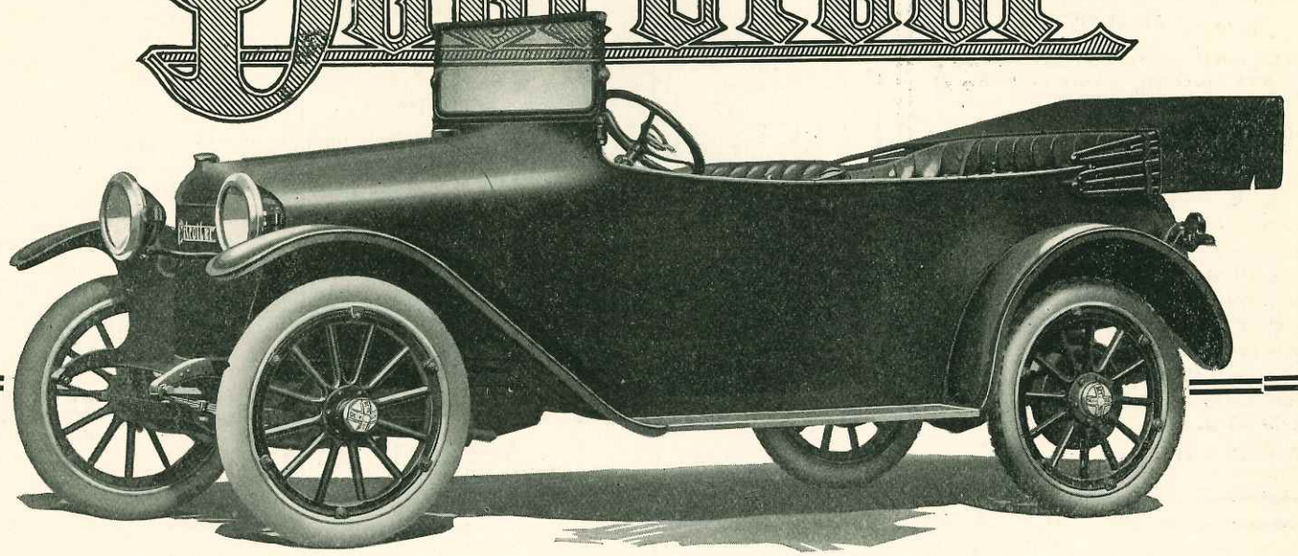
"The union label was used and a strike of the plaintiffs' employees was ordered and carried out to the same end, and the purpose was to break up the plaintiffs' commerce, affected by the quality of the acts."

After commenting upon the fact that a conspiracy had undoubtedly been proved Justice

BANKS AND TRUST COMPANIES.

	Annual Div.	Par.	Yield.
American State	6%	100	3.65
Central Savings	10%	100.	4.44
Detroit Savings	10%	100.	4.00
Dime Savings	12%	100.	5.11
First & Old Detroit National	8%	100.	4.50
German-American	8%	100.	3.80
Highland Park State	10%	100.	3.63
Federal State	—	100.	
Natl. Bank of Commerce	8%	100.	4.76
Peninsular State	10%	100.	4.64
Peoples State	12%	100.	4.44
United Savings Bank	8%	100.	3.75
Wayne County Home	12+1%	100.	3.74
Detroit Trust Co.	12+1%	100.	3.94
Security Trust Co.	10%	100.	4.03
Union Trust Co.	6+2%	100.	4.63
German American Loan & Trust Co.	8%	100	4.44

Detroiter



What You Expect in a Car!

Whether you are expert or layman, when you buy an automobile you are after the best—it's your right—and you want the best value obtainable.

What you expect in a car, that you will get in the Detroiter. Not only will you get the best, but you will get more of the best because the Detroiter is the most fully equipped car in the $1,000 price class. There are five cars worth considering in this class. Put the Detroiter alongside any one of them. Make a minute and painstaking comparison. Then you will see and appreciate the unsurpassed value—untouched beauty, unrivaled power, unequaled economy of operation, unassailable soundness of construction, unmatchable refinements and luxuries—that you get when you buy a Detroiter.

$985

Complete with Electric Starting and Lighting System

Beauty—Untouched because no car has equaled the exquisite grace of design pioneered by this first European streamline to be produced in America.

Power—Unrivaled because the long-stroke, ball-bearing motor—the first American built engine of this type—is tuned and balanced to the highest degree of perfection. Tremendous power at all speeds marks the Detroiter motor.

Economy—Unequaled because no other five-passenger car in the world has bettered, or can better the Detroiter's record—20 to 25 miles on a single gallon of gasoline and 100 miles on a quart of lubricating oil. So with fuel and oil at present prices you can travel 10,000 miles for less than $100.

Construction—Unassailable because the rugged strength and durability of the Detroiter have been proved beyond doubt. The fact that the year's average cost for factory repair parts was only $3.81 per car speaks for itself unrebutted.

Equipment—Unmatchable because the Detroiter has nine big features found in no other car in its price class, together with 35 points of absolute merit, extraordinary in a car of this modest American price.

Now You Know What You Expect in a Car. We Can Show You What You Will Get. Call at Our Show Rooms, and You Will Find that Your Ideas Dovetail With Our Facts

BRIGGS-DETROITER COMPANY, HOLBROOK AVENUE, DETROIT, MICHIGAN

Detroit United Lines

In Addition to Local Cars
FAST LIMITED CARS
Leave Detroit for

CLEVELAND AND TOLEDO—7:30 a. m. and every two hours to 5:30 p. m. Toledo only 7:30 p. m.

TOLEDO EXPRESS—7:00 a. m. and every two hours to 7:00 p. m.

JACKSON AND KALAMAZOO—6:00 a. m. and every two hours to 4:00 **p. m.**

JACKSON AND LANSING—6:00 p. m.

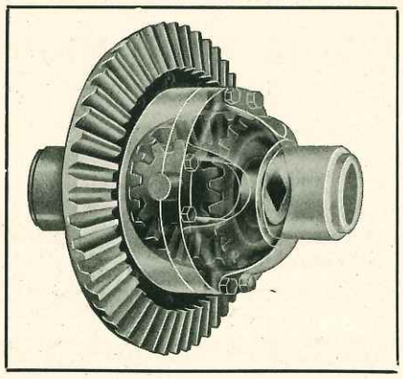
ANN ARBOR EXPRESS—7:00 a. m. and every two hours to 5:00 p. m.

FLINT AND SAGINAW—6:20 a. m. and every two hours to 6:20 p. m.

PORT HURON—7:15 a. m. and every two hours to 7:15 p. m. Sundays only, 11 p. m.

PONTIAC—7:10 a. m.

Bevel Differential Gears



Quality is the first consideration in the manufacture of our bevel gears and machining of automobile parts.

Small lots receive the same careful attention given quantity orders.

We do our own heat-treating and therefore do not divide our responsibility for quiet running gears.

Russel Wheel & Foundry Co.
DETROIT, MICH.

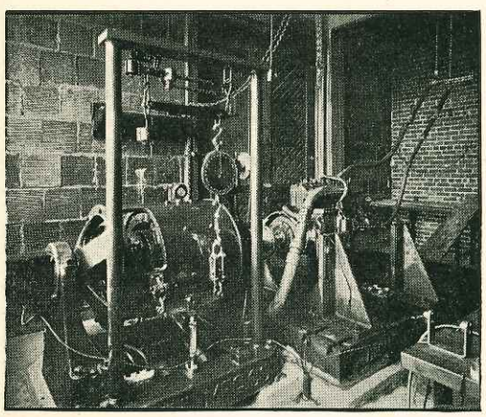
Holmes proceeded to fix the responsibility for it as follows:

"It is a tax on credulity to ask any one to believe that members of the labor unions at that time did not know that the primary and secondary boycott and the use of the 'we don't patronize list' or 'unfair list' were means expected to be employed in the effort to unionize shops.

"We think it unnecessary," continued Justice Holmes after reciting the facts about the dissemination of the literature through the unions and the Federation of Labor and the other agencies of publcity, "to repeat the evidence of publicity of this particular struggle in the common newspapers and union prints, evidence that made it lamost inconceivable that the defendants, all living in the neighborhood of the plaintiffs, did not know what was done in the specific case. If they did not know that they were bound to know the constitution of their societies and at least well might be found to have known how the words of these had been construed in acts."

Zenith Tests on Dynamometer Set

The newly equipped testing laboratory of the Zenith Carburetor Company, Detroit, Mich., is located in one end of the new plant, and includes a complete Diehl electric dynamometer outfit. This apparatus is very similar in principle to the A. C. A. testing apparatus in New York, and could be used for just as accurate and exhaustive testing.



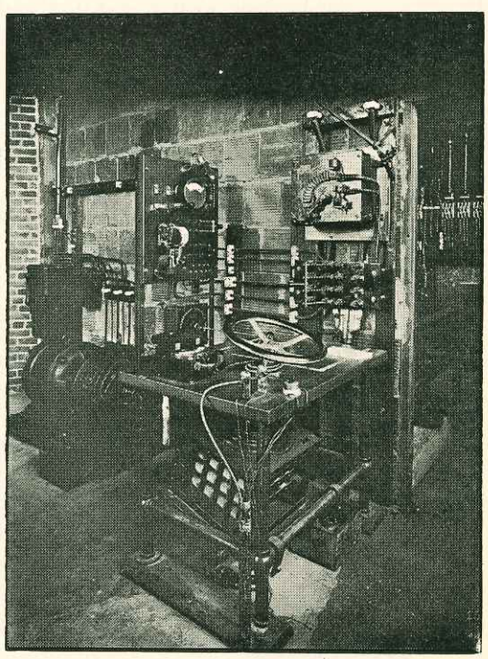
MOTOR MOUNTED FOR TESTING BY DIEHL DYNAMOMETER IN ZENITH CARBURETOR PLANT.

Of course, for carburetor testing, such an equipment acts only indirectly, in that the dynamometer records the power output of the gasoline engine to which it is connected, and its power output is in turn dependent to a large extent upon the carburetor furnishing it with fuel.

The gasoline engine connects directly to the armature of the electric dynamometer, and when the latter is driven by the engine, the armature tends to revolve the field, or outer part of the electric machine along with it due to the magnetic attraction between the two parts. The field portion is free to turn on its bearings at either end and it is separately excited by the current from a transformer set which is a part of the equipment because the dynamometer requires direct current, whereas the city supply is alternating. But the field of the dynamometer is attached by a link connection to scales, and the force necessary to prevent its revolving with the armature is thus measured by the scales, and is an indication of the power being put into the machine by the gasoline motor, the force, speed, and so on, being taken into consideration in figuring the horse-power by formula.

In one of the illustrations is shown the grouping of the various controlling and indicating apparatus on the table and on the wall and switchboard to the right and in front of the table. The hand wheel F seen in the center of the table governs the field rheostat F mounted under the table, while to the left of it are the spark and throttle controls S and T, making it unnecessary to step over to the motor to regulate them. Just in front of the wheel is a switch I which may be used to shut off the ignition current. An electric tachometer M records the dynamometer speed.

Without moving his position, the operator may also regulate the supply of cooling water to the engine, while at his right is the main double-throw switch D which, in one position, sends current into the armature of the electric machine so that it may be operated temporarily as a motor for starting the gasoline engine, while in the other position it loads the armature by sending the generated current into the resistance coils, the machine then acting as a dynamometer. Above this is the starting switch W for starting the dynamometer as a motor after the main switch is thrown in.



CONTROL FEATURES OF ZENITH TESTING LABORATORY.

A, automatic switch which cuts in when double throw switch D is swung to dynamometer position. F is the field rheostat and the wheel F is hand control for same. W is the switch starting the dynamometer as a motor. S and T are spark and throttle controls. I is the ignition switch, M the tachometer and V indicates the voltage of the transformer set, which is adjusted by rheostat R.

On the switchboard is a rheostat R for adjusting the transformer set voltage. The board also carries the voltmeter V, dynamometer circuit breaker A, etc.

MANUFACTURERS, ATTENTION!

Please Note That We Are Making

Crucible, Converter and Manganese Steel Castings

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Vanadium, Manganese Tool and Die Steel Castings

Special Attention Given Orders for Emergency Repair Castings. Write or Telephone Us Your Requirements and We Will Name Price and Give Quick Deliveries

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IMPORTERS OF

Bortz and Carbon Diamonds

-BORTZ- DIAMONDS -CARBON-

REGISTERED TRADE MARK

Branch: Windsor, Ontario

MANUFACTURERS OF

Diamond Pointed Tools

for Every Mechanical Purpose

Norton Landis

We Render "A SERVICE THAT ONLY BEGINS WITH YOUR ORDER"

PAIGE EDUCATIONAL EXHIBIT.

The thousands of people who annually throng the automobile shows at New York, Chicago, Detroit and other cities for the most part get but a superficial idea of the various models on display, says a Detroit manufacturer. Unless some special effort is made to meet the difficulty there is no opportunity and little inclination to understand the vital features that characterize the various cars the manufacturers are offering the public with so much pride and confidence.

The Paige Motor Car Company, however, is endeavoring to meet this situation by providing not only a special exhibit that will show the more important mechanical features of their new Six and their celebrated Four, but also a well informed official who can explain these features in an interesting and not too technical way. Thus all visitors who tarry at the Paige Exhibit will be able to carry away an appreciation of the fact that the vitals of a car are in the chassis and under the hood rather than in the external design and the superficial features. They will also learn in brief time just what gives Paige officials confidence in the superiority of Paige cars.

These special Paige exhibits consist of cut-out motors of the new Six and the Four models. The sections of the engine cut away enable the spectator to view the interior from various angles so that the characteristic features of design, such as the rocker arm and roller valve mechanism, especially desirable because of their noiseless operation, are seen. All the other working parts of the engine are also disclosed.

The layman, however, would not appreciate the nature and merits of these features without explanation and for this purpose the Paige Company has selected C. B. Benjamin, one of the factory executives, to be present at each of the important shows. Mr. Benjamin is not a technical lecturer. He will, however, conduct interesting and informal conversations on Paige mechanics so that any one visiting the Paige exhibit, whether they have mechanical knowledge or not, may get a reasonable idea of the principles which characterize this company's latest models.

REO MOTOR CO.'S BALANCE SHEET.

In the 14 months, ending Oct. 31 last, which constituted the fiscal period for the Reo Motor Car Company, owing to its setting forward the date for commencement of its fiscal year, the company's net profits are reported as $2,539,187.

The company's balance sheet as of Oct. 31, shows totals of $5,120,782. Assets included $738,145 in cash against $885,383 on Aug. 31, 1913. Accounts and bills receivable, less reserve, were $684,184 against $242,047. Merchandise, inventoried at cost, was listed at $1,923,212, compared with $1 064,895 at the end of the preceding period. Outside investments were $3,000 in contrast to $712,500, part of the reduction being accounted for by distribution among the stockholders of $600,000 par value of stock of the Reo Truck Company, formerly owned by the motor car company. Property account was $1,765,989 against $1,306,856 and prepaid expenses $6,251 against $4 891. Liabilities were: Accounts payable $368,406, compared with $126,792; accrued payrolls and salaries $45,293 against $20 136, accrued taxes $15,000 against $8,597; capital stock $3,000,000, increased from $2,000,000 and surplus $1,692,082, compared with $2 561,768, Aug. 31, 1913, when the balance sheet totals were $4,217,474.

KELLOGGS LOSE "CORN FLAKE" SUIT.

United States District Judge Arthur J. Tuttle declined to enjoin the Quaker Oats Company from selling breakfast food under the name of "toasted corn flakes," in a ruling made by him Jan. 6, at the close of an important case, involving millions of dollars' worth of disputed business, brought by the Kellogg Toasted Corn Flake Company.

Union Twist Drill Co.

Athol, Massachusetts.

Designers and Manufacturers of

Gear and Milling Cutters for All Purposes

CARBON OR HIGH SPEED STEEL

Milling and Gear Cutters, End Mills, Side Mills, Angular Cutters, Metal Slitting Saws, Concove and Convex Cutters, Reamers, etc.

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Metal and Woodworking Machinery
Factory and Shop Supplies

Our stock is very large and complete. Our friends tell us our service is prompt.

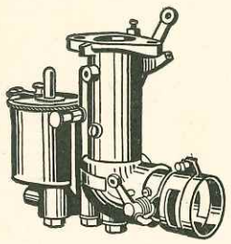
SEND US YOUR ORDERS AND INQUIRIES

We want to show you what we can do.

The Chas. A. Strelinger Company

Cor. Bates and Congress Sts., Detroit

WHEN ANSWERING ADVERTISEMENTS PLEASE MENTION MICHIGAN MANUFACTURER AND FINANCIAL RECORD.



Seven Years of Service

FOR seven years the famous Zenith has remained unchanged in principle and dominant on high-grade motor cars. Four allied factories in as many different countries are necessary to meet the demand. The Zenith is a world-wide institution.

For seven years the compound nozzle of the Zenith has given constant mixtures under all conditions. Up in aeroplanes or here through the fog of seashores it compensates correctly and requires no adjustment. Install the Zenith—then forget it.

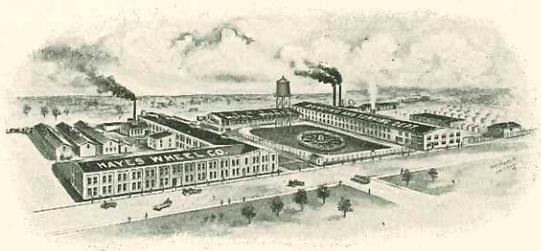
For seven years the Zenith has set the standard in simplicity. It has no valves or springs or cams—no adjustments to be tampered out of harmony—no moving parts to wear and fail. Your car needs the trouble-proof Zenith.

Dean of them all——built on the very fundamentals of carburetion—the Zenith is worthy of your serious thought and request. May we send you the Zenith story?

ZENITH CARBURETOR CO. DETROIT, MICH.

Will Make Eight Thousand Wheels a Day

The Hayes Wheel Company, of Jackson, manufacturers of wood wheels for pleasure cars and commercial vehicles, have just completed one of the most prosperous years since its incorporation in 1908. Several extensions have been completed, adding greatly to the manufacturing space, and practically doubling the kiln capacity. A new steam plant has been installed, with the boiler settings arranged to utilize the wood refuse as fuel, and also an independent power house which furnishes the company with a portion of their electric power. Work is now in progress to further increase the manufacturing space and provide additional warehouses, while two large batteries of reinforced concrete dry kilns are rapidly nearing completion.



When the Hayes Wheel Company first entered the field, its output was between three hundred and four hundred wheels a day and it employed 125 men; and this year, with 1,000 men on the pay roll, it is now furnishing five thousand wheels a day to the trade, and next year will be in shape to increase this to 7,500 or 8,000. From the beginning the policy of the company was to use only the finest grade of material in the spokes and felloes, and then carefully assemble these parts into a finished product as mechanically perfect as possible. Unceasing study of conditions at first have, aided by continual experimenting, brought about from time to time many changes in methods and in equipment, little improvements that increased production and added to the refinement of the work, and today the equipment is unexcelled by any wheel factory in the country. Several times it became necessary to double the capacity and at times it was hard pressed to keep pace with the rapidly increasing business, but throughout, the quality of material and workmanship was maintained. The gratifying success which has been its proves the soundness of its policy.

The organization back of the Hayes product is built up of wheelmakers, men who had been in the wheel business for years before becoming associated together under the name, "Hayes Wheel Company."

C. B. Hayes, President and General Manager, has been in the wheel business since 1888, at which time he started with the Standard Wheel Company of Kalamazoo, which was engaged in the manufacture of buggy wheels. In 1899 he gave up the general managership of the Standard to become general manager of the Imperial Wheel Company at Jackson, which company was engaged in the same line. Three years later he went to Flint as Vice-President and General Manager of the Imperial Wheel Company, of that city, where he branched out into the manufacture of automobile wheels, which were fast becoming a factor in the wheel trade, though the buggy wheel department was still retained. In 1908 he returned to Jackson to organize a company for the purpose of building automobile wheels exclusively, and in October of that year the Hayes Wheel Company was incorporated.

R. H. Loveland, who had been associated with Mr. Hayes at Kalamazoo, Jackson and Flint for eleven years previous, became Secretary of the new company, which position he holds today.

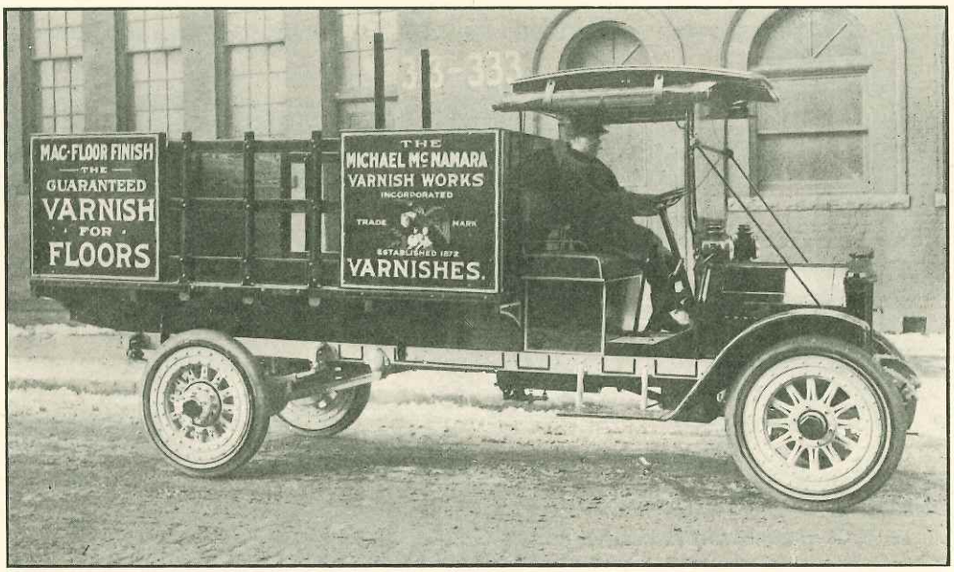
G. F. Scherer, who is Factory Superintendent, is an old employe, having been with Mr. Hayes in the wheel business since 1895.

Mark Merriman, Factory Manager, and A. D. Smith, Production Manager, have both spent the greater yart of the last twenty years in this same line, with experience in both the buggy wheel and the automobile wheel trade, and both these men play a very active part in the affairs of the organization.

W. C. Morrey, who has charge of the timber department, is the oldest in experience of any member of the organization. He started with the Woodburn-Sarven Wheel Company, of Indianapolis, Ind., in 1885, and remained there during the period in which this company was absorbed by the American Wheel Company, and later sold to the Standard Wheel Company. He took an active part in various capacities, and as Superintendent and General Manager, handled branch plants at Ottowa, Sandusky and Terre Haute. Mr. Morrey first became associated with Mr. Hayes at Flint in 1907, returning to Jackson the next year to take his present place with the Hayes Wheel Company. He has a thorough understanding of the business in all its branches and much credit is due him for keeping the quality of the Hayes product up to its nigh standard.

--another

FEDERAL



Worm Drive Model Purchased Recently by McNamara Varnish Works, Detroit.

THE New Worm Drive Federal, with Timken-David Brown Rear Axle, represents the utmost in transportation service

All the dependable and efficient service-giving qualities of the sturdy chain-drive Federals are combined with the silence, cleanliness and long life of the worm drive.

For many lines of work, such as ambulance, hotel bus, department store service, etc., the worm drive truck is more desirable than the chain drive truck, and it is to meet these demands that we have brought out this model, after careful tests for the past year.

You now have your choice between the famous chain drive Federal and the new worm drive Federal—both of which have actually proven their success in hard service in Detroit and all over the world.

To help you learn more of the efficiency of the 1½-ton Federals as compared with horse-drawn equipment, we are making actual traffic investigations. The results of these investigations are published in our magazine, "Federal Traffic News." You will be interested in what it says each issue. Shall we send it to you—it's absolutely free.

We can help you solve your transportation problem. Thousands of Federals are being successfully used now in over a hundred different lines of work.

Bodies made to suit your individual requirements.

FEDERAL MOTOR TRUCK CO.

Factory & General Offices—200 Leavitt St., Detroit, Mich.

SPARTAN
THE BELT WITH A POSITIVE GRIP

Spartan belts are unusually pliable and grip the pulley better than any other belting material. They transmit a maximum amount of power and a minimum of cost, thereby reducing the cost of transmission. They are made in all sizes. Each belt is guaranteed to resist heat, friction, oil, steam, gas, water and acid fumes. We also guarantee that

SPARTAN LEATHER BELTING

when used under the same conditions will last longer and render better service than any other form of transmission.
Remember, Spartan Belting on high-speed tools, drills, internal grinders, automatics, screw machines—in fact, all hard drives — means better work and more of it than from the various machines which heretofore were supposed to be turning out a maximum of work, both as to quality and quantity. We specialize on clutch leathers and fan belts and all leather specialties pertaining to the auto industry. Give us your inquiries.

THE GRATON & KNIGHT MFG. CO.

MR. C. F. URQUHART, Manager—Phone Cadillac 6211

264-268 Jefferson Avenue East Detroit, Mich.

Home Office and Factories, Worcester, Mass.

R. B. Mudge, Chief Engineer, is a comparatively new arrival in the wheel business, having been identified with the company during the past three years. Mr. Mudge is a graduate in engineering of the University of Michigan and his technical training is valuable in the engineering and inspection departments, of which he has charge.

Not long after the new company started, the increasing use of motor trucks opened up a new field to the wheelmaker, and a truck wheel department was added, which has been fully as successful as the light wheel end of the business. Early in 1912 plans were made to set up a metal working plant at Albion, Mich., to furnish malleable hubs and flanges, and in the fall of the same year this branch went into active operation. Since that time this end of the industry has increased, until today the plant handles 30 tons of castings daily. This branch is in charge of Otto Schwache, who has had many years of experience in work of this character. The majority of Hayes wheels are now furnished complete with wood parts, steel rims, brake drums and metal hub assemblies.

Thousands of dollars have been spent in the last year in the installation of carrier systems, hoists, and the like, in order to increase the capacity of the manufacturing units to the utmost and reduce the cost of production correspondingly. The handling of material by hand has been done away with wherever possible and lost motion reduced to a minimum; and with the enlarged quarters and improved equipment, it should be in a position to make the coming year the most prosperous in its history.

Development of the Denby Truck

The infant in the motor vehicle industry in Detroit is the Denby Motor Truck Company. This organization is composed of a group of responsible Detroit business men, who are thoroughly experienced in motor truck building and selling. The success they have attained in their few months of business is indicative of what a strong organization means to any concern that manufactures trucks.

Building the business on a sound basis makes for a successful future, and that is what the Denby Company is doing. Incorporated here in Michigan during July, 1914, they leased and remodeled a big plant at Dubois and Guoin streets, where they have been producing trucks for four months. Their plant is equipped with modern machinery, overhead trolley system, and other devices which keep down production costs.

A line of real 1,500-pound capacity trucks was first designed and built. To this was added one-ton capacity trucks, and now they announce both ton and a half and two ton capacity trucks, all following out the same general lines of construction.

The final drive is perhaps the most interesting feature in the construction of the Denby truck. This type of drive was deliberately chosen by the Denby Company as the simplest, most efficient, and least apt to give trouble to the user. It is commonly used in continental Europe, and is rapidly growing in favor here.

Other features are: The few parts used, the clean-cut appearance of the chassis on this account, the big radiation service, slanting hood, the gas tank mounted on dash, the low frame for loading, and the sturdy lines of the chassis, which looks, and is, unusually strong.

Garvin Denby is president of the Denby Motor Truck Company. He was previously connected with the Solvay Process Company, leaving there to become secretary-treasurer of the Federal Motor Truck Company, from which position he resigned previous to the formation of the Denby Motor Truck Company. Edwin Denby, who is treasurer, was formerly a member of the board of directors of the Federal Motor Truck Company, and is now treasurer of the Hupp Motor Car Company, also. J. Walter Drake, vice-president, was a former director of the Federal Motor Truck Company, and is president of the Hupp Motor Car Company. Other officers and directors are: Arthur Webster, Secretary; R. P. Spencer, Director of Sales; L. C. Freeman, Chief Engineer, and E. P. Decker, of E. P. Decker & Company.

The Denby selling methods are a radical departure from the usual procedure followed, and that they are working along the right lines is proven by the number of high-class distributors who have taken on Denby trucks. Their foreign business is developing rapidly, which is out of the ordinary for new firms in the motor truck business.

CHEWING GUM STOPS LEAK.

A small leak in the radiator may often be repaired temporarily on the road by covering the leak with chewing gum.

Newton Annis

SINCE 1887 Manufacturers of Furs SINCE 1887

WHOLESALE AND RETAIL

Men's Fur-Lined Coats

FOR AUTOMOBILE USE

Women's Fur Coats

MUFFS, SCARFS AND FUR NOVELTIES

Each and Every Fur Article on My Entire 3 Floors
Included in My 28th Annual Clearance Sale

BUY WITH CONFIDENCE OF THE WHOLESALE MANUFACTURER

ANNIS FUR BUILDING
Woodward at Clifford

THE ANNIS FUR POST
—FOUNDED 1887—

The Motorist's Side of The Automobile Rules

What the automobilist himself thinks of accidents in the streets of Detroit, their causes and how they could be prevented, with some suggestions regarding the violations of traffic contained by pedestrians, motorcyclists and drivers of vehicles other than automobiles, is contained in a letter to Byres H. Gitchell, secretary of the Detroit Board of Commerce, from Harry W. Ford, president and general manager of the Saxon Motor Company.

Mr. Ford suggests that the Safety First Society devote its efforts not only to educating the public to look out for themselves on the streets, but to assist in compelling them to be on the safe side by strictly observing city traffic ordinances and respecting the rights of all privileged to use the streets. He also urged the necessity of designating "north and south" streets paralleling Woodward avenue to relieve the congestion on that thoroughfare.

Mr. Ford's letter follows:

"I have read with great interest the plans of the Safety First society. Perhaps I need hardly say that I feel thoroughly in accord with all safety first movements, particularly with the very comprehensive program of education that the Safety First Society has mapped out. I will give the movement my personal support at all times, and will do everything in my power to have it supported by all members of the Saxon organization.

"From reading the plans, I think there is too little attention called to the accidents that are caused by improper use of the streets by drivers of other vehicles than automobiles. You suggest vigilance committees and all that sort of thing for capturing reckless automobile drivers. I think they ought to be captured and punished; but I also think that the "roughnecks" who drive delivery wagons around corners and keep heavy wagons in the middle of the streets, instead of out near the curb where they are supposed to belong, and the reckless motorcycle speeders—who are by far the worst offenders in the matter of speed violation—should come in for quite as much attention as the automobile drivers. I don't know any reason why a man who drives a team around a corner the wrong way should not be arrested the same as if a man drove an automobile too fast, unless it is that there isn't any ordinance that would enable the police to arrest him. If there isn't such an ordinance, there ought to be one.

"I think many of the stories that appear in the papers about automobile accidents also are very unfair to the driver of an automobile. Have you ever noticed that 'such and such a driver of an automobile killed such and such a person at a certain place?' It is always that the automobile driver killed somebody, whether there was contributory negligence on the part of the other person or not.

"The other night as I was going home, a small boy on a sled slid down an embankment on the boulevard and right across the street in front of me. It was only by exerting all the skill I possessed in handling my car and taking to the curb that I avoided running him down. I was not running fast, less than 20 miles an hour, yet, if the boy had been killed I would have been in the papers as having killed him. The real facts in the matter would have been that the boy committed suicide and I would have been merely an unhappy and luckless agent in the matter.

"I know that your program takes into consideration the education of the boys of the town not to slide across streets like this and not to do a lot of other things they are now doing which puts their lives and the happiness of decent automobile drivers into jeopardy; yet I think you should also educate the newspapers to a proper way of handling these things. It isn't fair to have a public prejudice built up against all automobile drivers, when many times the accidents that happen, from my own observation, and, I believe, in a majoritf of cases, were really unavoidable so far as the drivers of the cars were concerned.

"Please do not think I am making a brief for automobile drivers simply because I am an automobile man. That is not the case. But I am asking for fair play all around. The way large numbers of the people of Detroit who are not automobile drivers use the streets is shameful; and I think that a person on foot who violates an ordinance ought to be reprimanded just as quickly by the police department and punished as quickly as an automobile driver who violates an ordinance.

"One of the best suggestions in your plans, in my opinion, is that which provides for the reporting by members of the society of offending against the ordinances regarding the uses of the streets. I very frequently see reckless driving, either by automobiles or other vehicles; and, in fact, there is such a small number of users of the streets that only a very small percentage of the worst offenders are ever detected.

"My observation is that some perfectly decent and careful driver is very often called down or arrested for going a couple of miles above the speed limit in some part of the street where it would be perfectly safe for him to do so, simply because he is technically violating an ordinance, while some joy-rider in an automobile or on a motorcycle is racing his machine scandalously on another street or some other portion of that same street and is never apprehended at all. There are a lot of fellows who are habitually reckless drivers, that the police never get 'hep' to, simply because the law of averages is against their getting 'hep' to them.

"A vigilance squad of the whole Safety First Society would soon get the most of these fellows located, and that will, in my opinion, be the very best thing that can be done in curbing automobile and motorcycle speeding.

WORM DRIVE **SIGNAL** CHAIN DRIVE

This Truck is a Business Builder

This is a mighty important factor to the dealer who is building for permanence. It is more important than immediate profits. A truck may sell because of low price or some fancied advantage only to fall down in the tests of hard usage. The immediate profits are lost in giving free service and repairs while the task of living down the hard feelings and bad reputation is even more costly.

There is no such danger with the SIGNAL. It is a different kind of truck. It is not only built to sell, but is also built to serve. That is important, for a truck that serves faithfully and well is one that creates business for you. Every one on the road is a moving advertisement of SIGNAL quality and efficiency. This is mighty valuable, and the record these trucks make serve to bring new business to your doors. Therefore, a SIGNAL agency means a signal success.

Why is the SIGNAL so successful? First of all—because it is built right. The standard parts used are typical of the construction throughout. Such names as Timken Axles and Bearings, Continental Motor, Covert Transmission, Detroit Springs, Timken-David Brown Worm-Drive Rear Axle, Russel Jack Shaft, Gemmer Steering Gear, Eisemann Magneto, Stromberg Carburetor, tell an indisputable story of quality.

Then the capacities—one ton and one and one-half ton—are the easiest to sell. They have the widest application to delivery conditions. The choice of worm or chain drive and two lengths of wheelbase in the one ton, with the worm drive ton and a half, meet practically all requirements.

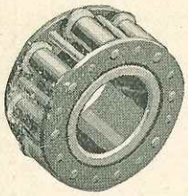
The SIGNAL sells because its quality and value is readily apparent and its adaptability is the greatest. It builds business because it gives such service that repeat orders and new business are inevitable. The agency for such a truck is profitable now and **IN THE FUTURE.** Surely you are sufficiently interested to write us now asking for proof.

CHASSIS PRICES F. O. B. DETROIT

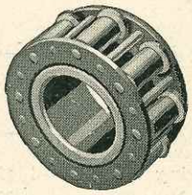
One Ton, Chain Drive	$1400
One Ton, Worm Drive	$1500
One and One-Half Ton, Worm Drive	$1700

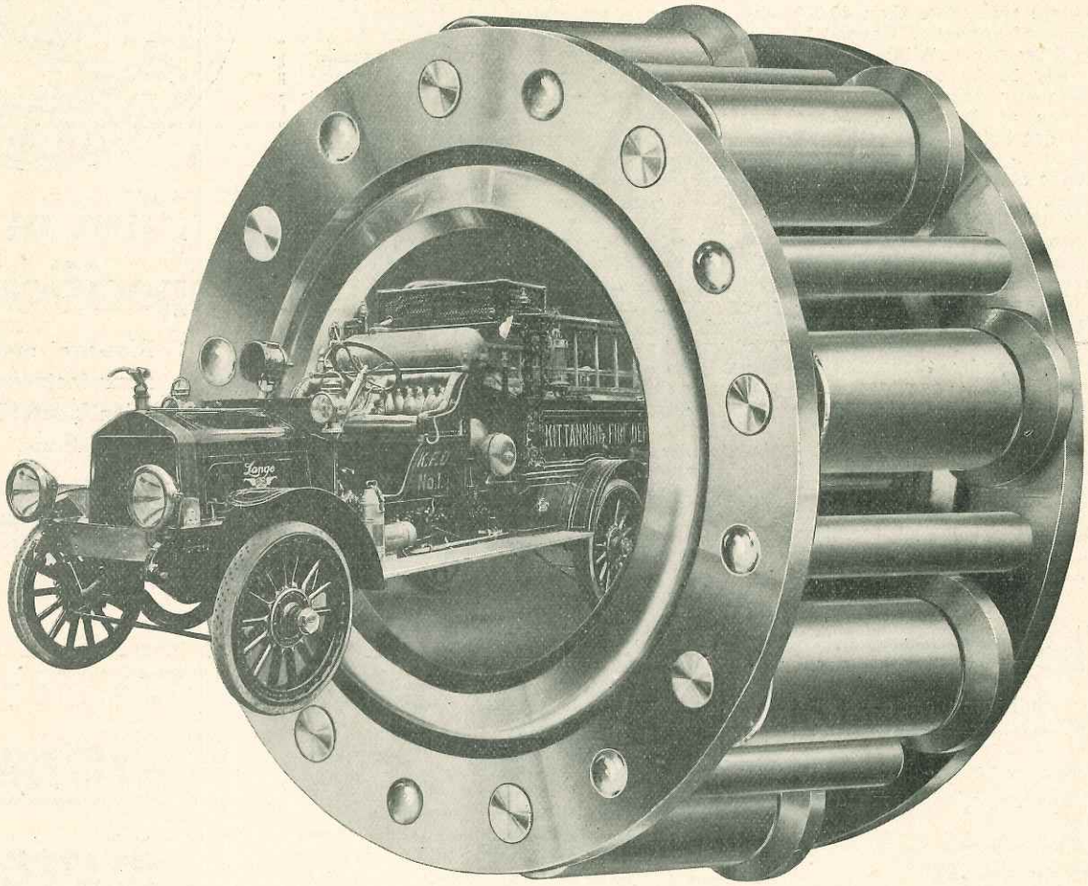
Signal Motor Truck Company, Detroit, Michigan

DETROIT MADE



"Bower Saves Power"





Through Bower Bearings With Least Loss of Power

The real power of any automobile is the net amount available after friction has taken its toll. Bower Roller Bearings, because of their original design, carry the heaviest loads with the slightest loss of power. It is for this reason and also because Bower Roller Bearings never need adjustment, that they are used today by 68 manufacturers of pleasure and commercial vehicles.

Write for Complete List and Full Information

Bower Roller Bearing Company

DETROIT, MICHIGAN

Continental Motors' Growth in 1914

The success of the Continental Motor Manufacturing Company, largest exclusive motor builders in the world, is attributed in great measure to the fact that the active management of the firm has remained in the same hands ever since the founding of the business 12 years ago.

During this period of a little more than a decade, these men have seen the business grow to such a volume that more than 40,000 motors are manufactured annually. Housed 12 years ago in a small factory building at Muskegon containing only 14,000 square feet of floor space, the company now operates two enormous plants, one at Muskegon, where four-cylinder motors are built exclusively, and one at Detroit, where "sixes" are turned out. These two plants have a combined floor space of 625,000 square feet.

Large additions to the Detroit factory, now nearly completed, have brought the total floor space up to the present enormous figure by adding 50,000 square feet. The largest unit of the new buildings is a continuation of the machine shop—already one of the largest structures of its kind in the world. This addition increases the floor space by thousands of square feet, wherein almost a quarter-million dollars' worth of special Continental machines will be installed.

The great extension to the experimental laboratories, adding as it does over 7,000 square feet of ground space to the existing laboratories, will give the Continental Motor Manufacturing Company unequaled facilities for research work. A wing added to the heat-treatment department will double this department's capacity.

"The rapid-growing popularity of the 'six' (this type alone being manufactured at the Detroit factory) is accountable for the large increases in our Detroit plant," states one of the officers of the company. "The sudden popularity of the 'six' is almost unprecedented, yet, so far as we are concerned, not unexpected. When we built our mammoth Detroit plant, we had 'sixes' in mind. And when, almost a year and a half ago we stated that this enormous factory would be given over entirely to the manufacture of 'sixes' alone, we were possibly looked upon in many quarters as altogether too optimistic. Even as late as last spring, it was predicted that 'sixes' would not come up to quantity expectations; yet, at the very time when such predictions were being made, this company was preparing still further to increase its manufacturing facilities for 'sixes' only."

When asked for an opinion as to the eight-cylinder type of motor, no one of the officials of the Continental Motor Manufacturing Company would express himself in other than general terms. The most that could be gathered was, in substance, this: "When any firm is ready to talk about an 'eight' as a commercial, not a theoretical proposition, they will find us all ready."

The picture above shows the board of Continental directors, the men who have built up this organization. These directors, from left to right, are: B. F. Tobin, President and Treasurer; R. W. Judson, Vice-President; A. H. Zimmermann, Secretary and Assistant Treasurer; W. A. Fredericks, Chief Engineer; H. J. Warner, Vice-President; G. W. Yeoman, Assistant to the President and Director of Sales.

The Chalmers Plant of 1915

The growth of the Chalmers plant continued during 1914 until it now consists of 21 main buildings.

The area of the plant is 30 acres.

The total area of floor space is approximately 1,500,000 square feet.

All main buildings are concrete and steel construction, and are absolutely fireproof.

There are 5,000 windows in the Chalmers factory, making it one of the lightest and most efficient manufacturing institutions in the country.

Nine thousand tons of coal are required annually for heating alone. If you had this to put in your furnace, you would have to lift your shovel filled to capacity 1,200,000 times.

The Chalmers factory uses 250,000,000 gallons of water a year.

Manufactured gas which is used for the block testing of motors costs the company $4,500 per month.

The Chalmers factory has a switchboard capable of handling up to 500 numbers. This switchboard is as large as the central station in some cities of 15,000.

Sunk beneath the ground in the factory yard, there is a gasoline tank with a capacity of 36,000 gallons.

Lubricating oil for the factory is bought by the carload, and is stored in an underground tank with 12,000 gallons' capacity.

The factory employs an average of 4,000 men, and the greater number of these men eat in the factory restaurant. In the Chalmers restaurant 800 men can be served and seated at their tables in seven minutes.

These 4,000 men build an annual production of 8,000 cars; the aggregate value of which is approximately $20,000,000.

The metal cuttings from the machining department where Chalmers cars are built, average 300 tons per month.

The entire factory receives a complete fire inspection daily. An insurance company inspector, in addition to the daily inspection, makes a complete weekly inspection. A third inspector examines every part of the plant monthly. Every department in the factory is equipped with automatic high pressure sprinklers. There are 100 fire alarm boxes, which ring directly to the city fire department.

Every essential part of the Chalmers car is built in the Chalmers factory by Chalmers men. Among the parts which are built in the Chalmers factory are front and rear axles, transmissions, fenders, motors complete, steering gears, radiators, gasoline tanks, self-starting systems, including generators, motor castings, tops, storm curtains, and so forth.

The Chalmers foundry is one of the best and most efficient in the automobile industry.

The value of machine tools used in manufacturing Chalmers cars is approximately $2,000,000—all absolutely the latest type.

The total investment in the Chalmers plant is approximately $7,000,000.

Here are some of the many departments of the Chalmers factory: Motor cylinder, motor parts machining, motor assembly, block motor test, chassis test, steering gear assembly, transmission assembly, gear cutting, drill press, lathe room, radiator enameling, fender and motor enameling, milling machine, screw machine, generator parts and assembly, electrical, blacksmith, top department, radiator parts, cushion department, wheel painting, chassis painting, chassis assembly, final assembly, final test, polishing department, fender department, sheet metal department, pattern shop, axle parts, front axle assembly, rear axle assembly, iron foundry, brass foundry, spring test.

CASHIERS CHANGE POSITIONS.

W. W. Greene, who has been assistant cashier of the State Bank of Deckerville for several years, has accepted the position of cashier of the State Bank of Carsonville to take the place of A. R. Niles, who went to Capac.

First in the Specifications

123 Pleasure and Commercial Vehicle Manufacturers list the Certainty of Continental Motors as first in the specifications.

For out of the eight good qualities for which any Truck or Car is selected, six depend on the Motor alone

*Speed	*Economy
*Power	*Flexibility
*Silence	Simplicity
*Endurance	Appearance

Continental Motors

And in these six particulars, Continental reputation is years long, world-wide, and unassailably supreme.

Thus does this Standard Motor establish the worth of the manufacturers' product in which it is installed.

For this reason Continental comes first in the specifications.

For this reason 123 Manufacturers make sure of sales and satisfaction by building into their product the Certainty of Continental Motors. It is irrefutable that this Standard Motor, representing one-fourth of the total manufacturing cost of a Car or Truck, guarantees *three-fourths of that vehicle's potentiality for service.*

See that Continental Certainty is in your next Car.

Continental Motor Mfg. Co.

Largest exclusive Motor Builders in the World.

Detroit, Michigan

FACTORIES: Detroit and Muskegon.

The All-American Car

As pioneers we once accepted European standards under the natural assumption that, being older in practice, they represented a more mature development.

But while our foreign connections were making parts that were acceptable as separate units, Packard engineers were working constantly toward their ideal of a completed car with every part designed and built in perfect harmony with every other part.

In the fixed purpose of attaining a Packard motor carriage standard which would surpass every previous achievement at home or abroad, we found the American answer for American requirements.

Results are valued in proportion to the intelligent and useful effort necessary to their accomplishment. Today the Packard is completely independent of Europe. It is Packard-made throughout and is rightfully acknowledged to be the criterion of motor cars.

Ask the man who owns one

PACKARD MOTOR CAR COMPANY · DETROIT · MICHIGAN

The Use of Motor Cars in South America

By R. A. Steenstrup, of Hupp Motor Car Co.

Conditions in South America, as observed in an eight months' trip, are particularly unsatisfactory at present, not only because of the European war, but because of purely local reasons. Crops have been bad in many sections. In others, where crops were good, roads were almost impassable, and therefore the products could not be taken to market. There have been many extravagant and inefficient administrations, so that credits have been greatly impaired, and the purchasing power of the communities has been restricted.

There is practically no manufacturing in South America. People have only their own materials to sell, and most of this has been bought by Europe. War has killed this market, and therefore they are selling nothing. As a result, production has stopped. The governments are away in debt, cannot borrow funds to finance enterprises, and are finding it hard to care for the idle men.

In Chili, the nitrate export business has suffered tremendously. This furnished one-third of the government's revenue, and was that country's principal product for export. Two days after war was declared, exports ceased, and two days later, every nitrate plant shut down. The government had to take more than 50,000 men from the nitrate fields, send them to the south, and try to give them enough work to earn their living. With the government revenue almost stopped, and its credits seriously impaired, this was a huge task. Banks closed their doors, no person would honor a draft on London, business had to be conducted with the medium of local money, the value of which is changing rapidly. Every South American republic of industrial improvement has been financed in Europe, where the government kept big gold reserves. Now they cannot borrow money, their own gold is tied up, and as we in the United States have not established banking connections in South America, and as European banks are not available for service, our business will be carried on with difficulty.

I will not deny that, in my opinion, we will see a gradual increase in our business relations with South America, and that the present war will afford a new milestone in the expansion of our foreign commerce. While, in many parts of the world, we will undoubtedly be able to immediately get large orders for goods of many descriptions, I feel that the commercial public at large in the states fail to realize the peculiar financial instability of the principal South American republics. They would seem to fail to take into account the fact that their income is insufficient to maintain the government. They have for years been compelled to borrow large sums of money, until now their loans are such a matter of fact that they are, for all practical purposes, considered as income.

These loans have been largely financed in Europe, and as soon as the war commenced, all European investments in South America were immediately suspended, and those that were contemplated were cancelled. The result was that a new financial panic was started in nearly every one of the South American countries. Under such circumstances, it is natural that their purchases will, for the time being at least, be confined to actual necessities, and that later they will expect to purchase upon the same terms as those upon which they have been doing business with Europe.

Furthermore, the principal products which these various countries export are of such a nature that they cannot be used in their own country, and their European markets, being largely cut off, they are deperately in need of other markets, and one of the best things that we could do to foster closer business relations with those countries would be to arrange in some way to buy their products in larger quantities than we have before.

The South Americans seem to purchase their goods from those who buy their own products. Brazil and Peru—whose best customers we are—are, in turn, purchasing tremendous volumes of goods from our country. This is not the case with the other republics, who have been buying largely from Europe.

There have been many difficulties encountered in trying to help the South American countries by using some of their goods. Some items, such as wool and cotton, come, of course, in direct competition with our own products. Other lines, such as ores, are subject to an import duty that would render their sale here prohibitive. If the government could omit the import duties in special cases of this kind, it would help tremendously to relieve the situation.

It must be borne in mind that, while the South American continent is vast in area—one republic alone being larger than the United States—it is very sparsely settled, and, with the exception of a few sections, it is settled by natives who do not use the majority of products such as are sold in the country sections of our own states. Railroads traverse tremendously rich countries, passing through towns consisting principally of mud huts, peopled with poor peons, clothed in rags.

There is room for millions of prosperous people in those places of South America, where the climate is healthy and the soil is productive, and in years to come these countries will undoubtedly be setted and thriving communities grow up. At the present time, there is

very little business done outside of the few large cities located on the coast. I, of course, do not mean that there are not a few rich landowners spread throughout the country who live as well as we do, but, as compared with our own country, where a large volume of business is done with the well-to-do class of people throughout the whole country, the contrast is tremendous.

In most of the countries there are tremendous plans on foot for improvement of sanitation, for building of railroads, and development of mines of every description. They have hardly as yet come to appreciate the value of good roads—of which there practically exists none outside of the immediate vicinity of every city. There is no such a thing as country highways in any part of the South American continent, because the poor people do not require these roads, as must of their teaming is done with oxen which crawl along, dragging carts with great big wheels, which would soon cut up any roads, even if they had them.

Important Elements in Motor Truck Operation

That the motor truck is an assured success—that it has come to stay, is no longer seriously doubted by manufacturers in Michigan. The question with business interests in this state no longer is, "Will motor trucks pay in my service?" but, "How can we make an installation pay the biggest returns?"

Having decided on the money-making and money-saving possibilities of the motor-truck method of transporting goods, business men are now concentrating their efforts in the solution of the big truck question—the question of choosing trucks that most completely meet individual requirements. Experience has established the fact that to install the right truck—the truck adapted to one's own service—means greater business efficiency and a reduction of operating expenses.

The wrong installation means less efficiency and increased expense of doing business.

And it is not wise to settle transportation problems offhand by the mere statement that gasoline trucks are better here, or that electrics will be more advantageous there. A careful study of conditions is necessary, considering all angles of the service—loads, routing, character of work, facilities for loading and unloading, and a score of other points each of which has an important bearing on the return that can be secured from a given truck investment.

And whether a manufacturer has sufficient hauling to operate one truck or a fleet, it is important that he take into consideration the greater speed and mileage radius of the truck and be willing to modify his present methods in order to secure the full advantage of motor truck equipment.

When the horse ruled supreme not one merchant or manufacturer in a thousand knew operating costs with any degree of accuracy. At best, the motor truck was introduced upon a system full of inefficiency and waste. The methods of handling goods which were satisfactory with horse-drawn vehicles do not fit the motor truck. And in order to secure best results when motor trucks are used, all delays in loading should be avoided whether the motor truck is to carry raw materials or finished product.

The big point in operating one truck or a fleet is to so arrange the system that the vehicle or vehicles may be kept moving the greater part of the working day. If an investment of from $1,500 up stands idle for any great length of time, the profits are apt to be consumed in fixed charges. Even at that, idle trucks are not nearly as costly as idle horses, and if a truck installation is kept busy hauling pay loads, the gain over horse-drawn methods in many cases is little short of extraordinary.

While this matter of keeping the truck moving is of utmost importance, the selection of the right gasoline or electric truck, depending upon the service required, has an even greater bearing on satisfactory operation.

Local service conditions are not infrequently such that they could be served by either type, gasoline or electric, but it is extremely unlikely that both would present the same commercial advantages. The two machines are radically different in construction, in operation, in care, and in upkeep, and their selection should be based entirely upon the kind of work the machine is needed to perform.

This feature has been taken into consideration by many manufacturers in Michigan who are using power vehicles. Some are using electric trucks with marked success, while others find that gasoline machines are more satisfactory. In determining the best truck for certain kinds of hauling, the advice and counsel of practical transportation men connected with the General Motors Company has been frequently sought. These men make a business of co-operating with manufacturers and business interests to the end that not only the right type be selected, but the right size and capacity. The prospective buyer may have his own ideas on the kind of trucks he wants, but the real transportation salesman takes an interest in guiding the purchaser's decision to the type and size of vehicle that will serve him best. In this connection it is worthy of comment that business men seem to have been much impressed by the broad manufacturing policy of the General Motors Truck Company, which recognizes the need of many sizes and capacities of trucks of both gasoline and electric types and by producing them all has equipped its representatives to render the highest type of transportation service.

The commercial advantage to the purchaser of dealing with a company manufacturing both types of commercial vehicles in various sizes is unquestionably a powerful factor. For consciously or unconsciously the manufacturer of a single type of truck is apt to advocate his product to almost any purchaser where he can see a sale.

BANK PRESIDENT DEAD.

John L. Winchester, vice-president of the State Savings Bank at Gagetown, is dead.

AGAIN PASS BILLION MARK.

Bank clearings in Detroit for 1914 showed an increase of $18,492,906.91 over the previous year, the total being $1,349,546,302.25. This is the third consecutive year in which the total passed the $1,000,000,000 mark.

Building figures showed a falling off of $2,007,240, the total being $28,427,140.

At the end of September there was a gain of $525,240 over last year, but the curtailment of building after that date caused the total to fall below last year's.

SUIT TO RECOVER SHARES.

The Kalamazoo City Savings Bank has begun suit against the Michigan Trust Company in United States District Court to recover a number of shares of City Savings Bank stock which Mr. Henry Lane furnished the Michigan Trust Company as collateral to obtain a loan for the Michigan Buggy Company before its failure.

The Kalamazoo bank claims a lien on the stock and has filed a petition to foreclose on the shares and apply them to Mr. Lane's indebtedness to the bank.

Frederick Neff, of McBride, president of the Bank of Neff & Son, is dead at the age of 73 years. He suffered a stroke of paralysis while in California last year and never fully recovered.

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Of almost every line of business can be successfully met by the successful line of

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The four types in the following capacities cover the needs in ninety per cent of the commercial field:

TYPE A, 1,500 LBS. CAPACITY
TYPE B, 2,000 LBS. CAPACITY
TYPE D, 1½ TONS CAPACITY
TYPE E, 2 TONS CAPACITY

From these four units your business can be fitted with the trucks which will most economically serve you, and we will be glad to discuss their adaptability at any time you indicate.

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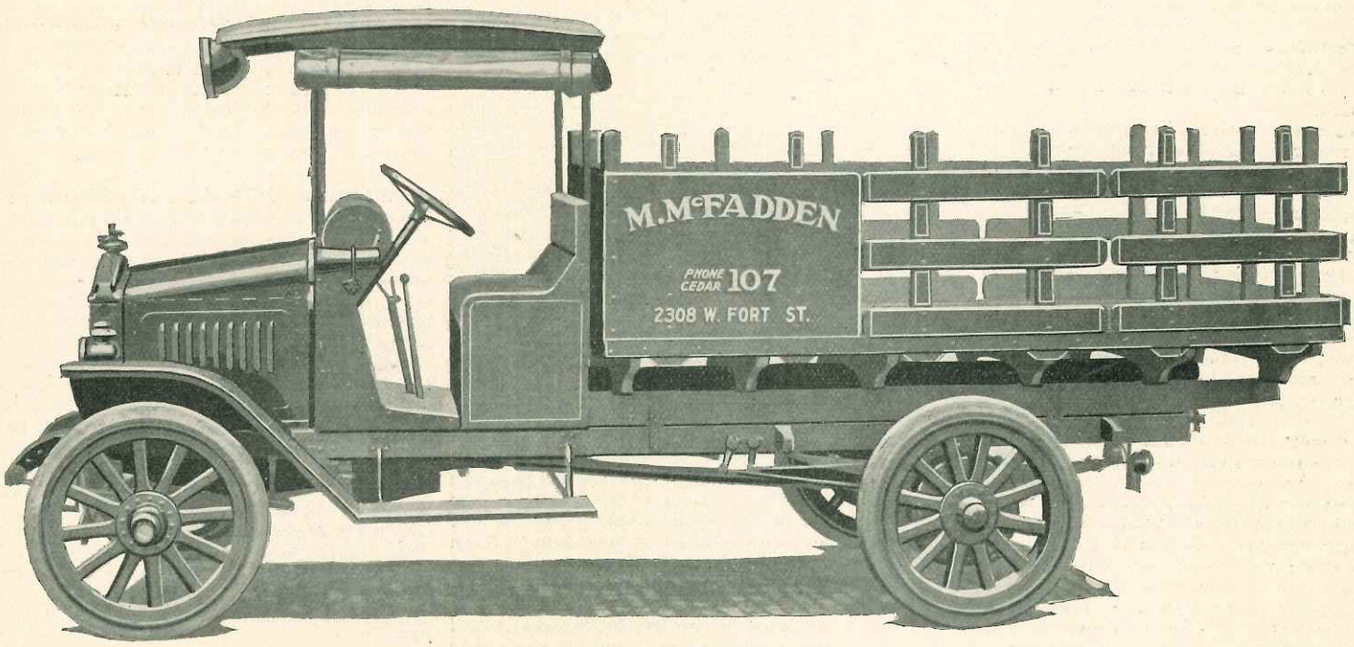

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THE PARISH & BINGHAM CO.
CLEVELAND, OHIO
Our Entire Engineering Force is at Your Disposal

Rubber Embargo Threatens American Tire Industry

A situation of the utmost gravity confronts the American rubber manufacturing industry as a result of the absolute embargo placed by the British government on the exportation of crude rubber from Great Britain and her colonies according to a statement made by the Rubber Club of America, which includes in its membership the leading manufacturers and importers of the United States. Regarding conditions the club says:

"Roughly speaking, this means the cutting off of over 50 per cent of the normal supplies of crude rubber required by the industry in the United States. Unless England consents to at least a partial removal of this embargo at an early date, it will mean idle men in rubber manufacturing centers, and a substantial increase in the price of all articles manufactured of rubber from automobile tires to rubber bands.

"The reason for Great Britain's drastic action is to be found in her determination to prevent Germany and her allies absolutely from obtaining any of the crude rubber grown on the great plantations in the British colonies of Ceylon and the Federated Malay states. The importance of rubber in the present war is evident from the extensive use of automobiles for all kinds of transport, as well as rubber footwear, ground sheets, clothing and balloon fabrics.

"Germany is willing to pay almost any price to obtain crude rubber, and it is only natural that Great Britain should take every precaution to prevent rubber from reaching her enemies. Nevertheless, it is felt by the American rubber industry that her interests would be thoroughly protected by guarantee against the re-exportation of rubber, which both manufacturers and importers are willing to give. Under the circumstances it seems that Great Britain is placing an unnecessary hardship on rubber manufacturers of this country.

"During the early days of October England began to treat crude rubber as contraband of war, and about the same time placed an embargo on all shipments of rubber from her colonies to any but English ports. This meant that all direct shipments from Singapore and Colombo to New York were stopped. But rubber still came on from London as before. On November 13 England extended the embargo to apply to all shipments of crude rubber from all English ports to any countries except those of her allies. Since that time no plantation rubber has been shipped to the United States.

"It was supposed that the British government would issue special licenses to American manufacturers by which they could obtain their necessary supplies as in the case of the embargoes on some other articles, especially as some of the manufacturers had contracted to deliver rubber goods to the British government.

"A special committee of rubber manufacturers and importers has been working with the state department at Washington on this problem and the state department is thoroughly alive to the importance of the situation. Owing, however, to the uncompromising attitude of the British government nothing has been accomplished, and the industry and the consuming public faces a very serious situation.

"Unlike the majority of our American industries, the rubber industry is entirely dependent upon crude rubber imported from foreign countries. In fact, the rubber industry is probably the largest business in this country wholly dependent on raw material brought from abroad. This makes the cutting off of her principal source of supply doubly serious.

"England and her allies cannot use more than one-third of the world's total production of rubber. On this account and also because the rubber growers in the far east are largely dependent on the United States market, it has caused no little wonder that the British government has refused to let supplies come forward to manufacturers in the United States upon their giving proper guarantees against re-exportation. If this attitude is persisted in the only reasonable inference is that England is trying to use this kind of pressure to obtain concessions to which our government cannot accede.

"At the present time the only source of supply for American manufacturers are South America, Mexico and Africa. The Brazilian rubbers are normally considered more expensive and the African and Mexican rubbers are of inferior quality. Six or seven years ago the greater part of the crude rubber used in this country came from Brazil. On account of the increased consumption due largely to the manufacture of automobile tires production since that time has been increased by the addition of the cultivation of rubber of the far east, until at the present time 60 per cent of the crude rubber used in American factories comes from the British empire. During this time consumption has fully kept pace with the increased supplies.

"The normal consumption of rubber in the United States at the present time is about 60,000 tons annually. Of this amount about 35,000 tons is plantation rubber, which normally sells from about 45 cents to 55 cents a pound. Already the embargo has forced the price up to about 90 cents. Normally about 200 tons of crude rubber per day is consumed in the United States. On account of this great increase in cost of rubber and its collateral results the increased cost of the industry is approximately a quarter of a million dollars per day. As to what the ultimate per diem cost to the industry will be, if the present embargo is allowed to remain, no one can predict.

"It is not only in the increased prices of rubber goods that the people of the United States will suffer through this seeming unwarranted embargo. Fully 125,000 people are directly or indirectly employed in the rubber manufacturing industry. Already owing to the slowing up of mills due to the lack of supplies it has been necessary to lay off a good many employes. In the city of Akron alone, known throughout the country as the rubber city, 25,000 people are employed in the rubber factories. Pennsylvania, Delaware, New York, New Jersey, Connecticut, Rhode Island and Massachusetts are important rubber manufacturing states. Unless some arrangement with the British government is arrived at soon the effect on this important industry will be far reaching and the consumers throughout the country will be obliged to pay increased prices for all rubber goods."

WARNING SIGNALS FOR MOTORISTS.

Automatic flashlight warning signals for bad curves or dangerous crossings on country roads have been suggested as an aid to safe touring in automobiles, and such a light now is being tried in England as an experiment. Such a light needs attention only once in three months, being allowed to burn night and day.

Acetylene from a tank at the top of a post by the roadside near the danger spot furnishes the light. Gas is fed to the flame every second or so, and at each flow of gas the light flashes.

By regulating the length of the periods when the flame is low, and so making the flash once every second and a half or every two seconds, the lamp could be made to run without attention for a longer time than three months.

An improvement suggested is to attach a device similar to that now used generally for light buoys, which turns the flame down during the daytime and up at night, controlled by daylight.

CONNECTING THE CARBURETOR.

When connecting the carburetor to the intake manifold of the engine it should not be necessary to pull the couplings in order to bring them into line. If the piping is in good order it should go into place without difficulty. If it does not, the difficulty may often be rectified by altering the position of the carburetor on its bracket. Bringing the parts into line by main force is very apt to strain the joints in the piping and cause leaks.

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The finest of food, the most perfect service, the atmosphere of beauty and congenial surroundings--all these make this metropolitan cafe the brightest spot in the life of the city.

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This Week--Mlle. Marguerite and Frank Gill, Sensational Dancers

Roemhild's Orchestra and Talented Singers

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See These Dancers

Mlle. Marguerite and Frank Gill at Cafe Frontenac.

The Report on Survey of State Labor Conditions

James V. Cunningham, commissioner of labor, recently made a survey of labor conditions in the State. The State is divided into 12 districts, each of which comprises several counties. Replies from all the districts, with the exception of Petoskey and Flint, were received. No report was asked of his inspectors in Detroit because of the work which the Detroit Board of Commerce is doing along this line and Mr. Cunningham felt that the board was in as close touch with the situation here as any one.

Mr. Cunningham reports that in Jackson there are many out of work. A large portion of the unemployed expected to go back to their jobs right after the New Year. Many of the factories are shut down for inventory at the present time. The prospects of the future look fairly bright, and in the meantime a large number of lakes in the vicinity of Jackson afford a great amount of work for the unemployed, which will help tide them over until factories resume operations again in full force.

The Bay City inspector reports to Mr. Cunningham that the lumber manufacturers are running from 40 to 60 per cent of their capacity, and that the general business is fair. A great many of the concerns are running full time and the banks are optimistic. In Battle Creek the conditions have, within the last 30 days, assumed nearly a normal condition. Many of the manufacturers are working full time. Similar conditions prevail in Sturgis and Hastings, while in Kalamazoo there are more men out of work, but everyone is looking on the bright side and in all probability every plant will be running full force shortly, according to a statement of F. C. Butler, of the Commercial club. In Lansing business is improving. Most of the factories will be running shortly with a full force and in some instances an increase will be made. Holiday trade was good, and in some instances better than a year ago. Building operations have been good. The deputy inspector in that city reports that the New Year is going to be an exceptionally good one.

All these reports which Mr. Cunningham received were made in the last few days in December. The Saginaw inspector reports that all the factories and shops will start on the first of the New Year and that the outlook is very good.

The Grand Rapids Social Workers' Association mailed out letters to 26 of the largest employers in the city. It received replies from 21. Thirteen of these reported the outlook to be very good. Six were non-committal and two of the opinion that business conditions would not improve for some time. These letters were not confined to any particular industry.

In Marquette the prospects look encouraging. While the lumber business has not been up to the standard of former years in the northwestern country, in the district which Ludington is located exceptional activity is reported. Leather industries are doing a nice business; the prospects are bright and other lines will have all they can do from now on.

In Owosso, business seems to be at present below normal. Nine out of 10 employers say that the future business for the next five years looks better than any of the past five.

Mr. Cunningham has been co-operating with the Detroit Board of Commerce in its unemployment situation and has received special inquiries from all the inspectors, at the request of Mr. Gifford, so that if it was possible to place any of the men in Detroit who are out of work in the various Michigan cities, it could be done.

TO ERECT CONCENTRATING PLANT.

The Quinn-Harrison property, located a short distance southwest of Nashwauk, on the Mesaba range, will erect a concentrating plant for the treatment of ores that have been developed at that location. The property contains a large tonnage of sandy ores that will have to be washed to make them marketable. The concrete foundations have been put in and the steel, which is now arriving, will be assembled as fast as possible the object being to get ready for washing so that ore may be shipped next season. New shops are being constructed at this location for the Butler Bros., who are engaged in stripping operations on this and other ranges, they to remove their works from Buhl. The Butler Bros. are interested in the Quinn-Harrison mine. The shops will give steady employment to about 30 men. The ores of the Nashwauk district are largely of the sandy variety needing washing. The Cleveland-Cliffs Company has a property of this kind that it will make ready for production.

UNITED STATES RUBBER DIVIDEND.

At a meeting of the directors of the United States Rubber Company Dec. 8 the regular quarterly dividends of 2 per cent on the first preferred and 1½ each on the second preferred and common stocks were declared.

At the meeting President Colt gave out the following:

"The treasurer's statement as submitted to the meeting showed net earnings of the company for 11 months from Jan. 1 to Nov. 30, 1914, sufficient to cover the dividends declared for the year 1914, including those declared today. While there has been some improvement in the business for December, which is continuing into January, the existing war has introduced an unprecedented uncertainty into the situation. There is every reason to believe that the embargo placed by Great Britain upon the importation of crude rubber will be so modified as not to embarrass the company in obtaining its requirements of the crude material."

RANK OF FIRST AND OLD DETROIT BANK.

The First and Old Detroit National Bank now ranks fourth among the 971 banks in the Chicago federal reserve bank district, and eighth among the banks west of the Atlantic seaboard, according to a statement issued by the bank. The assets and liabilities are given at $49,680,178.49.

In spite of the difficulties imposed by the consolidation of the First National Bank and the Old Detroit National Bank, the institution has gone steadily forward. The first three months of the consolidation were times of large cash reserves and low interest rates. In August this was reversed. In December conditions had become easier. There was no time when customers of the bank could not obtain money for legitimate purposes and they never had to pay higher than 6 per cent.

The bank has subscribed for $450,000 of the capital stock of the Chicago Federal Reserve Bank and has made an initial payment of $1,000,000 in gold. It pledged $192,000 to the $100,000,000 gold pool and subscribed $570,000 to the $135,000,000 cotton pool.

The balance sheet follows:

RESOURCES.		
Loans and discounts	$26,350,151.59	
Less unearned discount	205.395.30	$26,144,756.29
Overdrafts		2,613.54
U. S. bonds		2,164,400.00
Bonds and securities		5,265,776.19
Real estate		300,000.00
Safe deposit vaults, furniture and fixtures		170,000.00
CASH RESOURCES.		
Due from U. S. treasurer	$ 252,750.00	
Due from banks	7,280,891.14	
Due from reserve banks	4,891,550.12	
agents	4,891,550.12	
Cash on hand	3,207,441.21	15,632,632.47
Total		$49,680,178.49
LIABILITIES.		
Capital stock		$ 5,000,000.00
Surplus fund		2,500,000.00
Undivided profits		114,211.63
Dividend No. 3, payable Jan 2, 1915		100,000.00
Circulation		1,746,250.00
Deposits		40,019,716.00
Bond account		200,000.00
Total		$49,680,178.49

BANK SECURES NEW QUARTERS.

George H. Russel, president of the Peoples State Bank of Detroit, has signed a long term lease with the Gray estate for a portion of the new building to be erected by the latter on Washington boulevard adjoining the Hotel Statler. Announcement of the purchase of the property by the Gray estate from H. N. Hovey, and the plans for erecting a building in keeping with the other structures of the vicinity was made in Detroit papers recently.

The Peoples State Bank has leased two stories and basement, 32 by 120 feet in dimensions, and will remove its branch, now located in the Washington Arcade, into the new building as soon as the latter is completed. Mr. Russel said the rapid growth of the business of the Arcade branch made it necessary to seek new quarters. The part of the new building to be occupied by the Peoples State Bank will be constructed to suit its special needs and will be one of the most elaborate, largest and most modern branch banks in Detroit. The special department for women, which is a feature of the Arcade bank, will be retained. Excavating for the new structure is to begin in the near future.

WILL HEAD INSURANCE DEPARTMENT.

The insurance department of Homer Warren & Company has been placed in charge of J. Alfred Grow and Thomas J. Milan.

Both have had large experience in this field, Mr. Grow as special agent of one of the large insurance companies of Detroit and also as an expert for them in Connecticut and New York at the time workmen's compensation laws went into effect in those states. He will handle the fire insurance department, which represents seven large companies in the business, while Mr. Milan will conduct the liability department, in which line Homer Warren & Company are the general agents of the Ocean Accidents & Guarantee Corporation.

TAX EXEMPT

Municipal and Corporation Bonds
Public Utility Bonds
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W. E. MOSS & COMPANY

Investment Bankers

710 Union Trust Building, Detroit, Michigan

Members Detroit Stock Exchange

We Invite Correspondence

Regarding our lists of State, County and City Municipals, both in United States and Canada.

Wells, Humphrey, Nicol & Ford

Incorporated

416-417 Ford Building Detroit, Michigan

DETROIT BONDS ON NEW BASIS.

Bids for $1,778,000 of Detroit city bonds were received by Controller Engel on Monday of this week. These are the first bonds to be sold under the new powers granted the city to invite proposals at rates of interest above 4 per cent, the former legal limit. Bids were received from William A. Reed & Co., of New York; Detroit Trust Co., Bollger, Mosser & Wilhaman and H. Lee Anstey, bidding on portions of the offerings; and from Matthew Finn and First and Old Detroit National Bank bidding on the entire offering.

All the bidders offered less than par on the 4 per cent basis.

On a 4¼ per cent basis Matthew Finn, of Detroit, offered a premium of $985.40 on $758,000 of 10-year bonds. Matthew Finn's bid on the entire issue is at a premium which makes the rate 4.22 per cent. The bid of First and Old Detroit National Bank is figured by the bank to have been at the rate of 4.1675 per cent, while the controller figures it to net 4 24 per cent. The letting will be made by the city council later.

CANADIAN BANKS DISCOUNT.

Detroit bankers are much interested in a situation which has arisen in Canada, where a number of banks are imposing a discount charge on all payments on the American side of the boundary. One large Toronto bank quoted a discount rate of eleven-sixteenths of 1 per cent to a Detroit bank, Monday.

This rate is regarded as prohibitive by the Detroit bankers. There was some talk Monday of a meeting of the Detroit Clearing House committee to take action in the way of fixing a rate of discount to apply on remittances to Canada, but so far as could be learned action was deferred.

The present situation in Canada is attributed to heavy payments falling due in the United States from Great Britain and payable through Canadian banks, whose balances in American financial centers are now so low that they are unwilling to further deplete them.

BATTLE CREEK BANK CLEARINGS.

Battle Creek's bank clearing record was reached at noon Jan. 9, when the million mark for six days was passed.

This is the largest amount that has ever gone through the clearing house of that city in one week. The exact amount was $1,031,688.24, an increase over the corresponding week in 1914 of $130,414.08. The amount for the week ending Jan. 10, 1914, was $901,274.16.

The average record for the Battle Creek banks is from one-half to three-quarters of a million.

The record day of the past week was Jan. 4, with $210,856.36. Jan. 6 came next with $208,698.46, while the rest of the week was as follows: Tuesday, $160,061.46; Thursday $151,875.12; Friday, $136,090.80, and Saturday, $164,106.04.

TWO STATE BANKS FOR GAYLORD.

Hereafter there will be two state banks in the city of Gaylord. The Otsego County Bank, which has had a successful career as a private bank, has been reorganized and hereafter will be known as the Otsego County State Bank. The capital stock of the new organization will be $25,000, and A. T. Martindale, former county treasurer and a well known Gaylord business man, will be the new cashier.

WOULD BID IN DEFUNCT CONCERN.

Stockholders and creditors of the Kalamazoo Corset Company have placed a bid of $75,000 for the plant and good will of the concern. It is believed that the federal court will accept the bid and that George B. Pulfer, formerly of Detroit, who was recently named a receiver of the company and has been managing its business, will be continued at the head of the company. It is understood that there is plenty of capital ready to be placed in the company, providing the bid offered by W. S. Dewing in behalf of the proposed organization is accepted.

BANKRUPTCY SALE

STOCK AND EQUIPMENT OF

Detroit Bath Tub and Brass Mfg. Co.

will be offered at public auction by order of the Court at the premises, corner Second and Baltimore Avenues, Detroit, Mich., on

Tuesday, January 19th, 1915

At 10 O'clock in the Forenoon.

The property consists of a Brass Foundry and Machine Shop, with tools and equipment for the manufacture of brass and aluminum plumbers' supplies and automobile parts; woodworking tools and finishing equipment for the manufacture of sheet metal bath tubs and wood closet seat-and-tank combinations. It includes materials, raw and in process, for the above, as well as finished goods and manufacturing supplies.

With a good demand for the product of this Company, an attractive opportunity exists for the continuation of the business.

	Appraisal
Materials, raw and in process, and supplies	$10,091.19
Finished Products	886.94
Machinery, Tools and Equipment	8,529.71
Office Furniture and Fixtures	558.02
	$20,065.86

For further information, terms of sale, inspection of inventory, etc., consult

SECURITY TRUST COMPANY

Receiver in Bankruptcy, Fort and Griswold Sts.

FOREST FIRE LOSS IN CLOVERLAND.

Chippewa county leads all other counties in the Upper Peninsula in the 1914 loss by forest fires. State Game Warden Oates' report of the forest fire loss last year in the Upper Peninsula shows that the loss in this county was $50,099. This is nearly $14,000 in excess of the next highest loss, which was sustained in Alger county. The total loss in the Upper Peninsula was $187,471.

May was the worst month for fires. Sixty-two of the total 215 fires in the year occurred in this month and the loss was $116,812.

Of the fires in the Upper Peninsula 85 were of unknown origin, 50 were caused by the clearing of land, 31 by locomotives, 13 by fishermen, 11 by the burning of brush, 10 by logging engines, and seven by carelessness.

The fires of unknown origin, which burned over 68 389 acres, caused damage amounting to $67,876.50.

CADILLAC INVITES FURNITURE PLANTS.

That Cadillac will be widely known in the future because of the products of her two large furniture factories is believed to be certain.

Until the past two or three years the leading city of Wexford county has been recognized merely as one of the important "sawmill" towns of the state. A few years ago the St. Johns Table Company built a large factory in Cadillac and began the manufacture of dining room tables.

In a short time their business had grown to such an extent that they became the largest manufacturers of dining room tables in the world, a distinction which they still possess. This year, in addition to dining room tables, the St. Johns concern has entered upon the manufacture of library tables, office tables and directors' tables.

The concern will manufacture several patterns of these various tables and hopes to secure as good a reputation in their manufacture as it has in the dining room tables. Another Cadillac furniture manufacturing organization which has helped to put the city on the furniture map of the country is the Cadillac Chair Company. This plant, while not as large as the table factory, is turning out a large and high grade product and is making good.

A third furniture making organization which, although not located in Cadillac is so close to the city that it is considered as one of Cadillac's industries, is the Glengarry Upholstery Company, situated in a farming community of less than 200 population. This concern manufactures nothing but upholstered chairs, and because of its ability to secure labor relatively cheap, is making money and is turning out more chairs every year.

So valuable have the furniture factories been to that city that the local Board of Commerce is doing its best to induce others to locate there. The board had rather have furniture plants right now than any other lines of industry and is communicating with several at the present time which have "spotted" Cadillac as a likely place in which to locate.

CEDAR SPRINGS ALIVE.

The Cedar Springs Board of Trade has installed the following officers for the coming year: M. E. Sanford, President; Howard Morley, Vice-President; G. F. Furner, Treasurer; G. A. F. Ferguson, Secretary; L. R. Thomas and C. L. Maynard, directors.

The present membership of the board is now numbered at 56, a gain of three over that of last year. An extensive plan of improvements will be undertaken during the coming year, among them the grading of Main street.

It is the plan of the local association to put lines out for new industries and improve a road of four miles in length out of Cedar Springs.

RETIRED LUMBERMAN DEAD.

Charles Dossin, one of Detroit's early settlers, died Friday at his home, 276 Kercheval avenue, Detroit. Mr. Dossin was born in Liege, Belgium, Feb. 24, 1837. When a young man he came to this country and studied medicine, but did not practice. Later he started in the lumber business, and for many years conducted a successful planing mill. He retired some years ago.

ADAMS EXPRESS STATEMENT.

Adams Express Company's total operating income for three months ending Sept. 30 was $4,328,198, increase of $5,574 over the similar period of 1913. Total operating expenses were $4,607,075, increase of $365,815, leaving a net operating deficit of $278,776, exclusive of taxes.

Leaks in gas line at joints can be remedied temporarily by applying shellac on threads of coupling.

MICHIGAN
MANUFACTURER
AND
FINANCIAL RECORD

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Ira W. Welbon - - Secretary-Treasurer
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THIS PAPER IS ENDORSED

BY

Michigan Manufacturers' Association.

Michigan State Tax Association.

NOTICE

For the issue of any week on which a legal holiday occurs on Thursday or later, advertising copy, special notices and quotations should be in not later than Tuesday night.

THE 1915 MOTOR CAR SHOW.

Although this paper is not strictly devoted to the motor car trade, yet because of the fact that the automobile industry is one of the leaders of this state, we have from year to year signalized the occasion of the annual Detroit Automobile Dealers' Association show by the making of a special number devoted to the traffic of which the show is the annual exposition. This year, following our custom, we present to our readers our 1915 Detroit Auto Show Number, and we do it with much satisfaction. The year 1915 marks the formal appearance in the market of many new features in the industry. The gradual transitions toward standardization, toward the betterment of design, and toward the cheapening of what were formerly very high-priced types of cars seem to have met their full fruition in this year's offerings. The increase of power plant value is accentuated by the formal presentation of the eight-cylinder car, which, while a promise and a realization for a year back, appears in company for the first time. Other betterments along the lines of control, ignition and comfort appear a plenty, as they will always continue to appear so long as the busy brains of the designers are active and the keen eye of the critic discovers new problems for the brains to solve.

The MICHIGAN MANUFACTURER and FINANCIAL RECORD on this occasion of the most pretentious of the annual shows put on at the seat of the American automobile industry, issues a publication with respect to it that is larger, more beautiful and more prosperous than any of the six annual issues of which it is the latest. It may be of interest to the trade and the public in general to note that the access which we have had to the mind of the motor car trade during the business canvass necessary to the production of this issue, has shown a very healthy condition in both the manufacturing and selling ends. Our manufacturers see still greater fields to fill than were ever before apparent. Our dealers have found out new necessities for motor cars, and, so far from finding the field saturated, the best and lowest of them find that we are just on the edge of motor car use. The farmer, above all classes, is turning out to be the great absorbent of the product. Indeed, so far has this gone, that in certain parts of the western states country bankers look upon a farmer who doesn't own a motor car as they would upon one who had neglected to equip his farm with modern agricultural implements. There is no talk nowadays of a motor car representing a farm mortgage, as there used to be, when it wasn't any more true than it is today. At this time the farmer who doesn't own a car is looked upon as one who is prodigal of animal values, and of his own time, and as one who can't be doing very well.

The year 1915 promises to be a very prosperous one in the motor car industry. The impetus given it by the foreign war carried it over the hard times incident on recent economic changes, and the trade goes into the new year with enlarged fields, increased hopes and unparalleled ability to meet the demands promptly, economically and practically.

PROPOSE ADDITION TO CAPITAL.

Those members of both houses who spent the week-end in Lansing were discussing two measures that will come before the state legislature this session. One of them, providing for an addition to the state capitol, or a separate office building, is receiving a great deal of attention, and the consensus of opinion now seems to be that the appropriation should be made for an addition to the present capitol. The office building proposition is receiving many knocks, especially in the senate. It is pointed out that if such a building were erected it would prove to be just as much discomfort to the various departments as under existing conditions, inasmuch as it would of necessity have to be built at least a block and a half from the state capitol and thus incur about as much running around as at present, with state departments scattered all over the city.

The Panama-Pacific exposition building bill asking for an appropriation of $50,000, introduced by Senator Ogg, of Detroit, is also receiving considerable criticism. It is pointed out that the bill provides the appointment of a commission of five members by the governor, and while they do not receive salaries, their expenses are paid up to $5 per day, and it is thought this expense will amount to a large sum. Then, again, there is provision for a superintendent of the building when it is erected at the exposition, and past appropriations made for such enterprises, claim some members of the legislature, have proven that deficits have been made up at legislative sessions succeeding those where the appropriation was originally made.

Industrial Board Decisions.

In the case of Carrigan vs. The State Military Board, through a decision of the industrial accident board, the latter wins out and Carrigan has been denied compensation. Carrigan was employed by the military board in doing work at Port Huron. On November 25, 1913, Carrigan received a bad injury to his eye. An arbitration committee awarded Carrigan, but the military board appealed. The industrial board, sitting as a whole, reversed the decision of the arbitration committee as it was shown in the testimony that the petitioner was doing work for the federal war department and not for the state. Carrigan should have made the federal department the defendant, if he could have done so outside the court of claims at Washington.

In the case of Edward Lardie vs. Grand Rapids Show Case Company the board has decided that the applicant is entitled to receive compensation from the respondents at the ratio of $7.50 per week for a period of 37½ weeks in addition to compensation already in said cause. Lardie's right hand accidently dropped onto a revolutionary saw, the little finger being cut off and the first, second and third cut. The third finger is permanently stiff. At time of accident applicant was averaging $13.50 per week . Compensation for finger amputated was paid at that rate. Applicant is now earning $15 per week, and if additional compensation is allowed will be paid at that rate. The first claim was filed for loss of one finger and medical attendance paid and compensation amounting to $101.25 was paid. This matter is brought up before the board in a second claim, based on loss of use of other fingers than that for which compensation was paid.

In the case of Thomas Davis vs. Robert Gage Coal Company, the full board decided that the respondents be relieved from paying further compensation. The Robert Gage Coal Company petitioned the board praying that it be relieved from the payment of any further compensation. The petition was drafted and contained the following statements:

1. That all medical aid and hospital attendance has been paid by respondent.
2. That an agreement in regard to compensation was entered into whereby applicant was to receive $5.45 per week as compensation. That the compensation was paid for seventy weeks.
3. That the respondent is advised that years previous to this injury applicant broke his leg, which caused a thickening of the bone at that place. That on March 9, 1913, claimant received another injury at the same place and was consequently slow to heal.
4. That claimant is now and has been for some time entirely recovered from disability resulting from the injury of March 9. That if any disability exists, same is not attributable to this injury but to other causes.

A number of employes about the state house object to the recent decision rendered by the industrial board in which a man having but one eye was declared totally disabled when he lost the sight of the perfect eye through an accident. The case in question was was Charles Weaver vs. Maxwell Motor Car Company. Weaver, who became totally blind after the accident, was awarded the limit, $4,000. It is pointed out that such a decision militates against "one-eyed" men, one-armed men, or epileptic persons obtaining employment. The board contends, however, that such persons may agree not to come under the act and sign such an agreement on blanks provided before entering the employ of concerns that have elected to come under the compensation act.

State Railroad Commission Proceedings

RAILROAD COMMISSION AUTHORIZATIONS.

The State Railroad Commission has granted W. B. Serviss permission to sell the Owendale and Gagetown telephone exchanges to the Valley Home Telephone Company, of Saginaw. The consideration was $12,000.

The Alpena Lighting Company, with a capital stock of $10,000, has also been authorized to do business.

The Onaway lighting plant has also been granted permission to mortgage the plant for $25 000 and to use the money to purchase real estate which is to be used in the plant's business.

WOULD BLOCK TELEPHONE MERGER.

Injunction proceedings were started Dec. 6 by the Michigan Independent Telephone & Traffic Association against the Michigan Railroad Commission in the circuit court at Grand Rapids.

Judge McDonald issued a temporary restraining order, enjoining the commission from executing an order permitting the purchase of certain properties until after a hearing of the application for an injunction.

According to the petition, the Michigan State Telephone Company and the Southern Michigan Telephone Company filed an application for the right to exchange certain telephone properties. The Three Rivers Telephone Company asked permission to sell to the Southern Michigan Company.

The commission granted the petitions and the complainant objects to the execution of the plans on the ground that it has leased the property to the Southern Michigan Company and is entitled to the use of its lines, as exchanges, etc.

ANOTHER SUPPLEMENTAL RATE ORDER.

In an order issued Jan. 8 by the Interstate Commerce Commission, supplementary to the orders granting an increase of 5 per cent in certain specified freight rates, the eastern railroads were directed to preserve "existing groupings and relationships, even though by so doing some rates are increased slightly more than 5 per cent."

In the opinion of the commission such relationships "in the interests of carriers and of competition between shippers and receivers" ought to be maintained.

The commission further fixed a definite percentage of the New York-Chicago rates which may be charged to and from intermediate points. Percentage scales also were established for the charges to be exacted between the various freight territories.

P. M. FREIGHT INCREASE.

Freight revenues on the Pere Marquette Railway for November showed an increase of $32,508, or 3.08 per cent, over the same period last year, while passenger earnings showed a decrease of $15,088.08, or 5.02 per cent.

In the five months ended Nov. 30 mail earnings showed an increase of $864, while express earnings showed a falling off of $8,785.94, which leads the receivers to quote a railway journal in saying that "had the payment for carrying the mail increased half as fast as did the volume of mail carried, the postoffice department would show no surplus."

PREPARING FOR NEW FREIGHT RATES.

The transportation bureau of the Detroit Board of Commerce, the Grand Rapids Association of Commerce, and other similar bodies in Michigan, have received the new tariffs of the carriers, and attention of the shippers is called to the radical changes and increases affecting their business.

Michigan concerns making delivered prices are advised to see that proper heed is given to the advanced rates that become effective on Jan. 15, 1915. When the 5 per cent increase to eastern United States goes into effect, this will affect both class and commodities. Effective Feb. 1, 1915, proportional rates to Mississippi river crossings on business going beyond are increased. Also, attention is called to the new rules governing division and reconsignment of coal, coke and iron ore, tariffs which are effective Jan. 17, 1915; and the new rules governing the holding and reconsignment of carload freight, except coal, coke, iron ore, lumber, etc., which are effective Feb. 1.

RAILROAD MEN OPPOSE STRIKE.

According to members of Windsor unions of the Railway Brotherhood, a strike is not likely to be caused by the announcement of the Grand Trunk Company that there will be a reduction of salaries after March. The local unions are preparing arguments against the cut. These will be presented to the officials of the unions who will lay them before the company. The men who will be affected by the wage decrease are trainmen, conductors, engineers and firemen. If arbitration fails then a strike will be ordered, but this is not favored by Windsor railway men until every peaceful method for settlement has been used.

PROTEST NEW TRAIN SCHEDULES.

Protests against the recent changes in the schedule of the Pere Marquette trains operating from Port Huron have been sent to the interstate commerce commission at Washington and to the railway commission at Lansing, signed by residents of surrounding towns affected by the change. In one instance passengers arriving in Port Huron from points south must wait 24 hours for their train to points on the Almont division, if they use the Pere Marquette into that city. This delay is also encountered by the postal authorities.

NEW HAVEN TO STUDY DETROIT RAILWAY OPERATIONS.

A committee of eight officials of the New York, New Haven & Hartford Railroad Company, including Vice-President J. M. Tomlinson and General Manager C. L. Bardo, has been appointed by President Elliott to visit Detroit, Chicago, St. Paul, Omaha, St. Louis, and other cities in the west and middle west, to study railroad operations there with a view to obtaining information and data that will be helpful in making the operation of the New Haven road safer, more efficient and more economical.

"Already an examination has been made of some of the methods on the Erie, Pennsylvania, Southern and Baltimore & Ohio roads," reads the announcement of the appointment of the committee. In undertaking the investigation, the announcement states, the road is trying to follow the suggestion of the interstate commerce commission that the railroads of the country adopt all measures that tend to produce greater efficiency and economy.

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Corner Lafayette and Shelby
DETROIT, MICH.
German Cafe with Up-to-Date Menu
At Popular Prices
Special Attention to Parties After the Show.
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F. P. STRIKER, Proprietor.

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Capital $1,000,000.00
The officers keep in close touch with all industrial interests of the city.
Any business along financial lines or inquiries contemplating active relations will receive prompt and courteous attention.

Complete Banking Service
DETROIT SAVINGS BANK
Travelers' Checks
Letters of Credit
Foreign Drafts
Safety Deposit Vaults
Savings Department
Commercial Department
This is the oldest Bank in Michigan; established in 1849. Branches in every section of the city. The
Detroit Savings Bank
Penobscot Building, Fort Street West

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Municipal Bonds
Yielding 5% to 7%
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Investment Securities
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First National Bank Building Chicago

Detroit Stock Exchange

BANKS.

	Par.	Bid.	Asked.
American State	$100	163	
Central Savings	100	225	
Detroit Savings	100		355
Detroit Trust Co.	100	235	
Dime Savings	100	173	
First & Old Det. Nat'l	100	105	
Federal State	100	210	
German American	100	180	
German-Amer. L. & Trust Co.	...	225	300
Highland Park State	...	134	
Merchants National	...	250	
Michigan Savings Bank	100		209
National Bank of Commerce	100	270	
Peoples State	100	216	
Peninsular State	100		252
Security Trust Co.	100	173	181
Union Trust Co.	100	190	212
United Savings	100	340	347
Wayne County Home	100		

STOCKS.

Acme Lead, com	$ 25		14½
Acme Lead, pfd	25		17¾
Amer. Light & Trac. Co., com.	...	320	324
American Lumber	10		40
American Public Utilities, com.	100		35
American Public Utilities, pfd.	100	64	67
American Shipbuilding, com	100		
American Shipbuiding, pfd	100		
Burroughs Add. Machine	100	287	
Chalmers Motor Co	...		95
Chalmers Motor Co., pfd	...		93⅝
Cities Service, com	100	44	47
Cities Service, pfd	100	51	55
Commonwealth Ry. Power & Light Co., com	...	54½	55¾
Commonwealth Ry. Power & Light Co., pfd	...	77¾	79½
Detroit & Cleveland	50	90	92½
Detroit Creamery	10		21
Detroit Edison	100	109	111
Detroit Fire & Marine	50		
Detroit Iron & Steel	10	6½	8
Detroit Iron & Steel, pfd	10		10¼
Detroit Valve & Fitting Co		6⅝	7¾
General Motors, com	100	88	86
General Motors, pfd	100	91	93
Great Lakes Eng	100		5
Holland-St. Louis Sugar Co	...	110	125
Iron Silver Mining Co	10		
Lozier Motor Co	100		
Lozier Motor Co., pfd		15	16
Maxwell Motor Co., com	...	44	45½
Do., 1st preferred	...	18	20
Do., 2nd preferred	...		
Mich. Fire & Marine	50	85	
Mich. State Tel. Co., pfd	100	41	
Mich. Sugar, com	100	68	75
Mich. Sugar, pfd	100	15	22
Minnesota Sugar, com	...		45
Minnesota Sugar, pfd	...		
Mexican Crude Rubber	10	4½	5¼
Miles Detroit Theatre Co	...	9	10¼
Nat. Grocer, com	100	66	68
Nat. Grocer, pfd	100	90	92
Packard Motor, pfd	100	90	100
Pacific Gas & Electric Co., com	...	41	42½
Parke, Davis & Co	25	110	
Reo Motor Truck	10	10⅝	11½
Reo Motor Car	10	22¾	24
Scotten-Dillon	10	127	135
So. Cal. Edison	...	76	79
S. S. Kresge, com	100	96	99
S. S. Kresge Co., pfd	...	100	103
Standard Accident	100		
Standard Screw, com	100		
Standard Screw, pfd	100		
Towar's Wayne County Creamery	..	30¾	34¼
Truss Conc. Steel, com	10		25
Truss Conc. Steel, pfd	10		10
White Star Line	95	48½	
Wolverine Port. Cement	10	2⅞	3⅝

BONDS

Consumers Power Co.—5s, 1937			91½
Det. Electric Ry.—5s, 1916		95	98
Det. & Flint—5s, 1921			93
D., F. W. & B. I. Ry.—5s, 1928			
D. & L. St. C.—5s, 1920			
D., M. & T. S. L.—5s, 1938			96
Det. & Nor'w'n—4½s, 1921			
Det. & Pontiac Ry.—5s, 1922		96½	100½
Det. & Pontiac—4¼s, 1926			
D. & Pt. H. S. L.—5s, 1950			91
Det. Railway—5s, 1924			94
Det. Rock Salt Co.—6s, 1932			
D. R. & L. O.—5s, 1920		91½	95½
D. Y. & A. A.—6s, 1917		99	
D., Y. & A. A.—6s, 1924			100
D., Y., A. A. & J.—5s, 1926			87
Det. Unit. Ry.—4½s, 1932		65	
Det. Edison Co.—5s, 1933		100¼	
Det. Edison Debenture—6s, 1924		107	
E. Mich. Edison—5s, 1931			100
Det. Gas Co., com.—5s, 1918			101
Det. C. G., G. M.—5s, 1918-22		95	
Det. C. G. Co. P. L.—5s, 1923		99	100
Det. & Suburban Gas Co.—5s, 1928.		90½	92½
General Motors—6s, 1915		100	101
Mich. S. Tel. Co.—5s, 1924		95	
Rapid Ry. Co.—1st 5s, 1915		79	
Tol. F. & N.—5s, 1920		93	
Wyandotte & Det. River—5s, 1918.			100

*Ex-dividend.

Michigan Bond Items

Kent county board of supervisors have voted to issue the remaining $100,000 of a $600,000 good roads bond issue. The entire amount will be used in constructing and repairing highways in the county.

Bids up to $1,778,000 worth of 10 and 30-year Detroit city bonds were opened in the controller's office Jan. 11. Twelve bids were received from bond dealers and private investors. The method of bidding varied in each proposal and the combinations submitted were so complex that after the bids were opened, the bonds buyers present wrangled over the low bid which Matthew Finn claimed on a straight interest basis of 4.19 per cent. The bids were submitted on an interest basis of 4 and 4½ per cent. The award will be made later.

DETROIT TRUCK EXPORTS.

From a compiled list of war trade orders printed in a copy of the New York Journal of Commerce, covering exports since the beginning of the war in Europe, three big items coming from Detroit are shown.

They show the exportation of 650 Packard automobile trucks valued at $2,225,000, 100 Standard trucks valued at $300,000 and Federal trucks valued at $315,000. All the shipments were made to the allied governments participating in the war.

Other orders known to have been filled by Detroit concerns are an order for 600 tons of copper for shells, $60,000 worth of saddlery goods manufactured by Armstrong & Graham and an order for woolen goods that will require three months' operation by the Detroit-Alaska Knitting mills.

UNITED LIGHT AND RAILWAYS CO.
SECURITIES

Write for Special Circular on above and send in request for our Weekly Financial Letter.

Howe, Snow, Corrigan & Bertles
Mich. Trust Bldg., Grand Rapids, Mich.

Goldfield and Tonopah

Our Market Letter, just issued, gives latest developments at Atlanta, Jumbo Extension, which has declared another 5c dividend; Goldfield Cons., which has declared 15c dividend; also Tonopah Mining, Belmont and Extension, dividend payers, and Tonopah Merger, Market Letter and Special Reports mailed on request. Direct Private Wire to our Main Office, 41 Broad St., New York, and other Mining Exchanges. No Promotions.

CHAS. A. STONEHAM & CO.
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Main 2410; Cadillac 2410.

WE WILL SELL
Standard Oil of California
S. S. Kresge Common
General Motors Common
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Main 66 Moffat Building
Members Detroit Stock Exchange.

Devitt, Tremble & Co.
INVESTMENT BONDS
First National Bank Building
Philadelphia CHICAGO Detroit

New Michigan Corporations

FOR THE WEEK ENDING JANUARY 9.

Woodbridge Ornamental Iron Co. (F), Chicago, Ill., Detroit, Mich.	$ 10,000
Huron Implement Company, Bad Axe	20,000
Dort Motor Car Company, Flint	500,000
Herman Hughes Lumber Company, Flint	50,000
International Mill and Timber Company, Bay City	100,000
Wolverine Winter Top Company, Detroit	2,000
F. S. Kresge Company (F), Wilmington, Del., Detroit, Mich.	7,000
Empire Laundry Company, Detroit	10,000
Arntzen Brothers Company, Escanaba	10,000
Detroit Daily Market Press, Detroit	5,000
Phoenix Sprinkler Company, Grand Rapids	1,000
E. J. Woodison Company, Detroit	100,000
Eclipse Manufacturing Company, Detroit	10,000
Mellen Wright Stephens Company, Birmingham	25,000
Baker Clay Company, Grand Ledge	150,000
Peterson Fish Company, Monroe	10,000
Sweeney-Huston Company, Detroit	50,000
May Lumber Company, Clio	15,000
Port Huron Water Motor Company, Port Huron	7,000
Cadillac Builders' Supply Company, Detroit	50,000
George S. Dilas & Company, Bay City	22,000
Business Building Corporation, Lansing	10,000
Bay City Plumbing & Heating Company, Limited, Bay City	2,400
Cross Country Riding Club, Detroit	10,000
Consumers' Mercantile Ass'n, Kalamazoo	10,000

INCREASES.

Kalamazoo Pythian Realty Co., Kalamazoo, Inc., from $15,000 to	$ 30,000
Adrian Telegram, Adrian, Inc., from $75,000 to	85,000
Boerth's Quick Lunch, Detroit, Inc., from $10,000 to	100,000

DECREASES.

Sault Ste. Marie Gas & Electric Company, Sault Ste. Marie, from $200,000 to	$150,000
Cowles-MacDowell Pneumobile Company, Detroit, from $5,000,000 to	500,000

CHANGES.

Crawford-Schaefer Company, Detroit, (name changed to Brennan Supply Company)	$ 2,000
Cowles-MacDowell Pneumobile Company, Detroit, (name changed to Pneumobile Motor Car Company)	500,000

DETROIT REALTY BOARD ANNUAL.

The Detroit Real Estate Board officially closed one of the most successful years in its history Jan. 7, with the annual banquet and meeting at the Hotel Pontchartrain, with Joseph G. Cannon, former speaker of the house of representatives, as the honor guest and principal speaker. The new officers for 1915 were installed.

The executive committee, headed by President E. C. Van Husan, now consists of 17 men, including the officers and the chairmen of all committees.

The committee appointments as announced by the incoming president at the annual meeting are as follows:

Arbitration—C. M. Harmon, Chairman; Walter W. Smith, Vice-Chairman; Daniel Kelly, Walter C. Piper, Percy J. Farrell.

Appraisals—James S. Holden, Chairman; John I. Turnbull, Vice-Chairman; Homer Warren, John H. Tigchon, Edward I. Stimson.

Membership—Jerry C. Hayes, Chairman; F. A. Fry, Vice-Chairman; Fred P. Smith, B. F. Stephenson, Wistar W. Gates.

Legislative—F. C. Shipman, Chairman; George T. Bader, Vice-Chairman; B. F. Mortenson, Thos. W. Ward, Guy S. Greene.

Rules and Revisions—Frank C. Everts, Chairman; W. G. Gilmore, Vice-Chairman; Rawson B. Harmon, Henry E. Candler, Lewis A. Innis.

Entertainment—August Helbig, Chairman; Hugo J. Hesse, Vice-Chairman; Herbert J. Wilson, Andrew L. Malott, John M. Schunk.

Publicity—George S. Shaffner, Chairman; Robert M. Grindley, Vice-Chairman; Don M. Dickinson, Jr., Martin Featherstone, Horace P. Paterson.

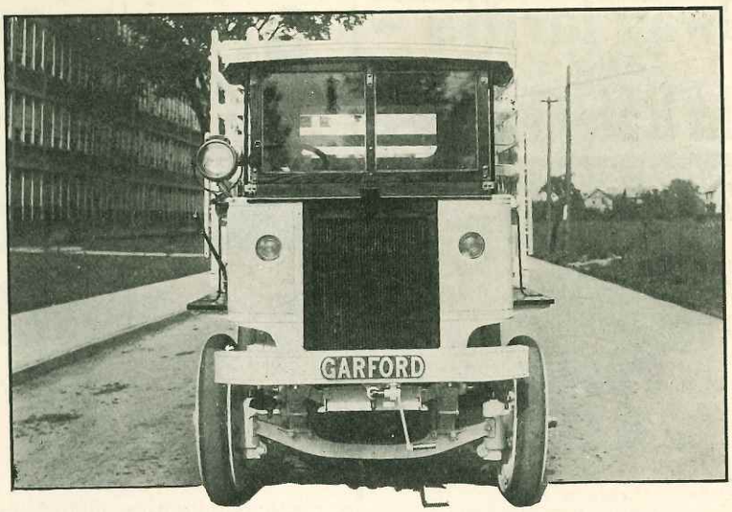
Public Affairs—Edmund T. Paterson, chairman; Clarence S. Vaughn, Vice-Chairman; Matthew Scanlon, Edward A. Hoffman, D. W. Simons.

Ways and Means—Richard G. Lambrecht, Chairman; George G. Epstean, Vice-Chairman; Henry G. Wormer, Walter C. Woolley, C. W. Hockett.

Visitation of Sick—Wm. H. Irvine, Chairman; Alfred M. Lamar, Henry Plass.

Tract Index—Judson Bradway, Chairman; Harry A. Stormeltz, Frank C. Nall.

National Convention—Walter C. Piper, Chairman; Edward A. Loveley, Judson Bradway.



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or

Commercial Auto Repair & Storage Co.

161-165 East Congress St.

Cadillac 5791 DETROIT, MICH

Garford

Trade DD Mark

Trade DD Mark

Here's a drill ready to prove its value

as a producer in your shop; ready to prove that it does **more** and **better** work than other drills—or cost you nothing. It's one of 4000 members that make up the family of—

"DETROIT"

Twist Drills, Reamers, Cutters, Etc.

And every member of that large family is made of the best quality of "small tool" steel. The same exactness—the same accuracy—characterizes every individual "Detroit" Tool and places it on the top round of the ladder of efficiency.

If you're open to conviction, send for Catalog "S"—select a trial order. If you're not absolutely satisfied, you get your money back without quibble or question.

DETROIT TWIST DRILL CO., Detroit, Mich.

512

Railway Tariffs and Freight Rate Changes

As Corrected Weekly by the State Railroad Commission for Michigan Shippers

JAN. 4, ADVANCES.

C. K. & S., 165, Brick, Kalamazoo, etc., to Albion, Battle Creek, etc., 1-15.
C. F. A., 79, Starch and Plaster, between Michigan points, 1-15.
C. F. A., 126, Cement and Plaster, Michigan points to Northern Michigan points, 1-15.
C. F. A., 114, Clay, brick, etc., Michigan points to Northern Michigan points, 1-15.
C. F. A., 117, Brick, clay, etc., Michigan points to Northern Michigan points, 1-15.
C. F. A., 107, Clay, Michigan points to Northern Michigan points, 1-15.
D. T. & I., 185, Cement, Detroit and Wyandotte to Michigan points, 1-15.
D. & C. Ry., 128, Brick, East Jordan to M. C. R. R. stations, 1-15.
G. R. & I., 968, Brick, tile, etc., Kalamazoo, Keystone, etc., to various Michigan points, 1-15.
G. R. & I., 994, Plaster, etc., Grand Rapids to V. M. P., 1-15.
G. T. Ry., 393, Starch, Battle Creek, etc., to various Michigan points, 1-15.
G. T. Ry., 379, Brick, clay, etc., Detroit, Corunna, etc., to various Michigan points, 1-15.
G. T. Ry., 404, Brick, Corunna to Ypsilanti and St. Joseph, 1-15.
G. T. Ry., 398, Plaster, Grand Rapids to various Michigan points, 1-15.
G. T. Ry., 407, Cement, Detroit, Wyandotte, etc., to V. M. P., 1-15.
M. C. R. R., 1182, Brick, clay, etc., M. C. R. R. stations to V. M. P., 1-15.
M. C. R. R., 1183, Cement, M. C. R. R. stations to various Michigan points, 1-15.
M. C. R. R., 1181, Plaster, etc., Detroit, Grand Rapids, etc., to various Michigan points, 1-15.
P. M. R. R., 1776, Plaster, etc., Detroit, Grand Rapids, etc., to various Michigan points, 1-15.
P. M. R. R., 1777, Cement, Newaygo to various Michigan points, 1-15.
P. M. R. R., 1778, Brick, clay etc. Detroit Saginaw etc., to various Michigan points, 1-15.
P. M. R. R., 1165, Starch, Harbor Beach, Hart, Traverse City to various Michigan points, 1-15.
P. M. R. R., 1770, Diversion and reconsignment rules at Pere Marquette Railroad stations, 2-1.
Wabash, 251, Plaster, etc., Detroit to various Michigan points, 1-15.
Wabash, 273, Brick, etc., Detroit, Britton, etc., to various Michigan points, 1-15.
Wabash, 266, Cement, Detroit to various Michigan points, 1-15.
W. T. L., 35, Starch and plaster, between Michigan points, 1-15.

JAN. 5, ADVANCES.

C. C. C. & St. L., 486, Logs, Big Four stations to Big Four stations, 2-1.
C. C. C. & St. L., 488, Wood, Big Four stations to Big Four stations, 2-1.
C. C. C. & St. L., 414, Diversion and reconsignment rules, 2-1.
C. C. C. & St. L., 478, Starch, Big Four stations to various Michigan points, 1-15.
C. C. C. & St. L., 474, Starch, Big Four stations to various Michigan points, 1-15.
C. C. C. & St. L., 487, Brick, etc., Big Four stations to various Michigan points, 1-15.
C. C. C. & St. L., 489, Cement, Big Four stations to various Michigan points, 1-15.
D. & M., 449, Cement, Alpena to various Mcihigan points, 1-15.
D. T. & I., 42, Cement, Detroit and Wyandotte to various Michigan points, 1-15.
D. T. & I., 43, Reconsignment of freight, rules governing, 2-4.
N. Y. C. R. R., 433, Brick and tile, Detroit, Jackson, etc., to V. M. P., 1-15.
N. Y. C. R. R., 436, Cement, Detroit, Quincy, etc., to V. M. P., 1-15.
P. M. R. R., 1779, Brick, etc., mileage between P. M. stations, 1-15.

JAN. 6, ADVANCES.

D. T. & I., D-224, Brick, Scofield to Detroit, 1-17.
D. T. & I., 45, Starch, Detroit to various Michigan points, 1-20.
E. & M. R. & N Co., 39, Plaster, etc., Alabaster to V. M. P., 1-16.
E. & M. R. & N. Co., 40, Plaster, etc., Alabaster to V. M. P., 1-15.

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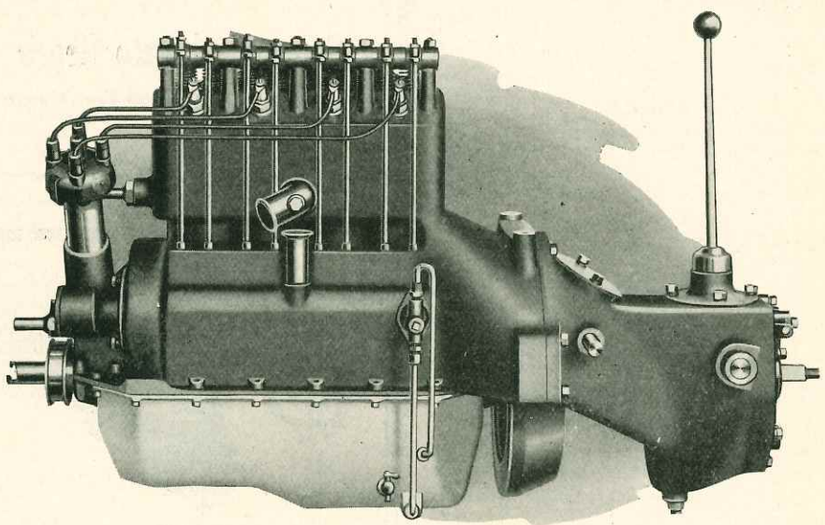

STERLING MOTOR COMPANY

1145 West Grand Boulevard - - DETROIT

JAN. 6, REDUCTIONS.

G. T. Ry., Logs, Armada to Mount Pleasant, 1-17.
N. Y. C. R. R., 4, Allowance of advance charges, rules, 2-9.
P. M. R. R., 1780, Pulpwood, East Jordan to Detroit, 1-17.

JAN. 7, REDUCTIONS.

D. S. S. & A., 956, Cordwood and saplings, between D. S. S. & A. stations, 1-18(*).

JAN. 7, ADVANCES.

G. R. & I., 976, Logs and bolts, T. C. I. & M. Ry. stations to G. R. & I. stations, 1-18.
Soo Line, 449, Edgings, etc., Nahma Junction to Manistique, 1-20.
P. M. R. R., 1677, Tank bark, P. M. stations to V. M. P., 1-17.

JAN. 8, ADVANCES.

A. A. R. R., A-406, Reconsignment, stop off, etc., rules A. A. R. R. stations, 2-9.

JAN. 9, REDUCTIONS.

P. M. R. R., 1782, Auto wheels, Lansing to Pontiac, 1-20.

*Also contain advances.

FREAK-SIZED TIRES.

Care should be used in buying a car to see that the tires are of commonly used size. Very soon there will not be many freak-sized tires.

DECEMBER COPPER EXPORTS.

The announcement of the Department of Commerce that exports of copper for the first four weeks of December and last day of November were only 33,600,000 pounds came as a surprise, as it was believed shipments were greatly in excess of that figure.

Evidently there was no reduction in surplus stocks, as was the case in October and November, when exports were approximately 65,000,000 and 55,000,000 pounds respectively.

The heavy fall in exports in December is attributed to the attitude of Great Britain toward American shipping interests.

The Auto, Once a Luxury, Has Become a Necessity

The automobile has been democraticized. It is no longer merely the plaything of the millionaire, but the servant of the many, says B. C. Forbes of New York. It is the steed of the twentieth century, the steed and wagon combined. It is a steed that eats only when it works, a steed that does not get tired, that seldom gets sick, that goes farther and faster than its four-footed predecessor, that can draw heavier loads and carry more passengers.

Designed at first for pleasure, it now does an increasing share of the world's work in times of peace—and spares the lives of its quadruped brethren in war.

Once a luxury, it is now a necessity. Once a provocative of extravagance, it is becoming more and more an instrument of economy.

It breeds health. It is the best tonic the world has ever known.

Its advent has given the United States a new industry of greater importance and ramifications than any other youthful industry extant. And it is only in its infancy. Its growth no human eye can foretell.

Let me present, in the form of questions and answers, the salient facts and figures about the automobile in America. Some writers have accused me of "attacking automobiles" as being responsible for many and heinous economic evils, this because long ago I printed an article—not at all condemnatory—on the amount of money spent on automobiles and its effect upon the demand for investments as portrayed by a correspondent whom I quoted. And only this week I received a newspaper cutting of a "thrift article" based on something I recently wrote on that vital subject and supplemented by original comments on the extravagance fostered by automobile buying. It would ill become me to berate others for buying automobiles since I have been guilty of using them constantly for half a dozen years. That by way of preface. Now to the meat in the cocoanut:

How many automobiles are in actual use in the United States?
One million five hundred thousand.
Their cost price?
One thousand five hundred million dollars.
How many commercial vehicles are there in use?
One hundred thousand.
What is the present average value of new automobiles?
Nine hundred and eighty dollars.
How many cars were produced in the year ended June 30, 1914?
Four hundred and thirty-five thousand.
What was their value?
Four hundred and twenty-five million dollars.
How many tires are worn out annually?
Nine million.
Their cost?
Three hundred million dollars.
What is the average life of a car?
Five years.
How have exports increased from the United States?
In 1907 automobile exports were $5,502,000; in the year ended June 30, 1914, they were $34,500,000.
How have imports decreased?
In 1907 they were $4,842,000; in 1914, $1,432,000.
How do our exports compare with those of European countries?
France exported $44,000,000 in 1913, and Germany and Italy combined, $44,000,000.
How many automobiles are there in the whole of Germany?
Ninety-three thousand.
How many in New York City of all kinds?
Forty-four thousand six hundred and twenty-eight.
How many chauffeurs in New York state?
Sixty thousand.
How about Chicago?
Chicago had 11,000 cars in 1911; 26,000 in 1914; in 1911 Chicago had 58,000 horse vehicles, and in 1913, only 54,000.
Where are most of our automobiles made?
Michigan manufactures 75 per cent of America's output.
What proportion of that state's wage earners are employed by the industry?
One-fourth.
How many recognized manufacturers are there in the United States?
Four hundred and fifty.
How many dealers?
Fifteen thousand five hundred.
Who are the principal owners of automobiles?
One-half of all the automobiles in Iowa are owned by farmers, and in Wisconsin, one-third.
What are the sales of automobiles in the United States in 1915 expected to total?
Eight hundred and seventy-five thousand cars.
These figures have been furnished me by the National Chamber of Commerce and should, therefore, be authoritative.

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Coolers for Gasoline Engines

Highest Quality. Thoroughly Equipped and Absolutely Dependent on Our Own Departmental Production

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LONG MANUFACTURING CO.

EAST GRAND BOULEVARD
From Commons to Richmond Ave.

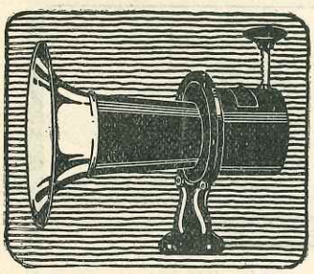
TERMINATES LONG RECEIVERSHIP.

Willis Baldwin, of Monroe, and I. H. Burgeon, of Fremont, O., have been relieved by Judge Gilday in the United States District Court from further service as receivers for the Toledo, Ann Arbor & Detroit Railroad Company. Litigation resulting in a receivership was instituted seven years ago, shortly after the road had been laid out to connect Toledo with Ann Arbor. Under the receivership the road has been constructed from Toledo to Petersburg, 18 miles, and is now in operation with prospects for future extension to its other terminus. Following the discharge of the receivers, their bonds were canceled and the road was turned over to its owners.

PLEASED WITH P. M. APPRAISAL.

Federal Judge Tuttle, who is in charge of the Pere Marquette receivership, is satisfied with the $78,000,000 appraisal of the railroad's properties, made by Prof. M. E. Cooley. The appraisal was made for the State Railroad Commission, but the cost must be paid by the railroad.

"Dean Cooley is one of the foremost engineers in the country and a man in whom I place the utmost confidence," said Judge Tuttle. "When the preliminary arrangements for the appraisal were being made, I told Dean Cooley that we wanted the actual figures without any coloring, and I do not question but that is what we have."



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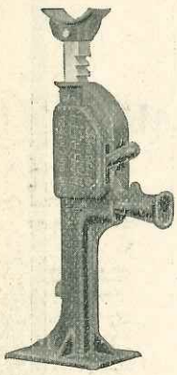
AUTOMOBILE HEADQU

For Accessory Dealers, Garages, Tire Repair United States



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UNION CARBIDE
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WITH BLUE BANDS
CAPACITY 10 LBS.

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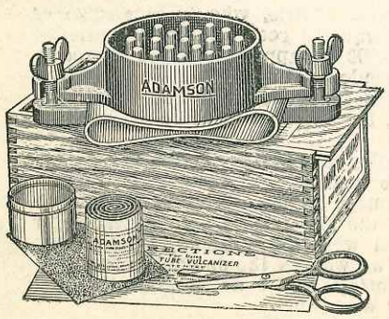

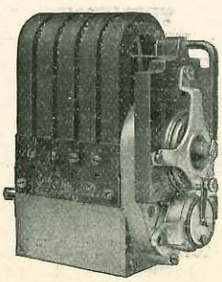

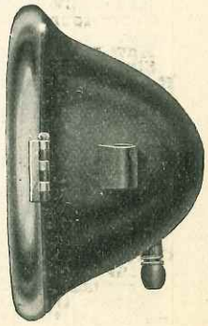

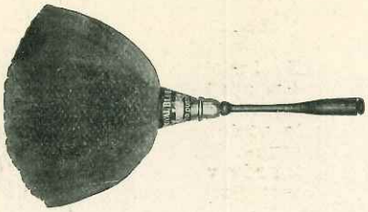

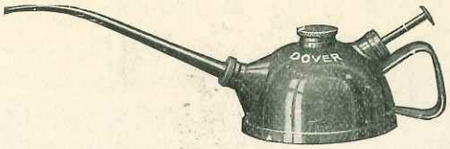

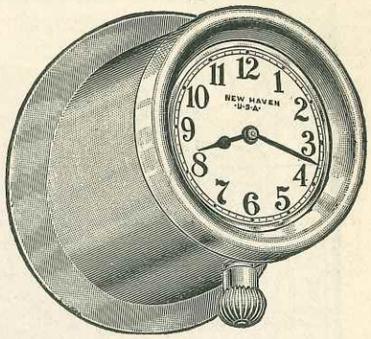

SUPPLIES

ARTERS

Shops and Quantity Buyers Tnroughout the and Canada

RADIATOR HOSE
RUBBER MATTING
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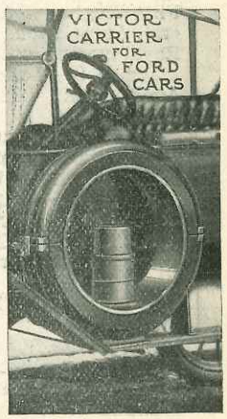
Automobile. Pneumatic and Solid Tires, Soft and Hard Every Description



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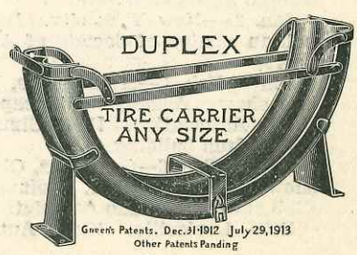
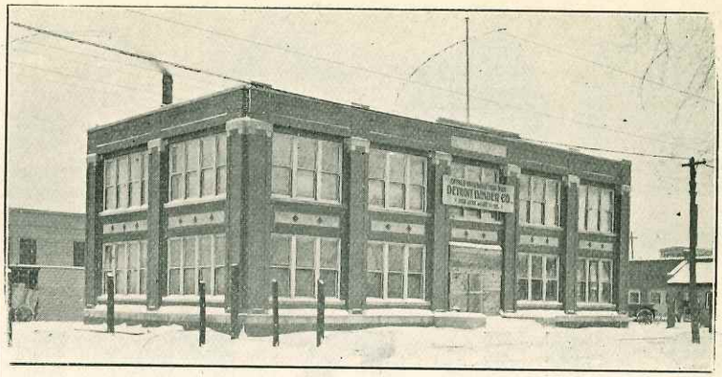


WAREHOUSE FREDERICK STEARNS & COMPANY



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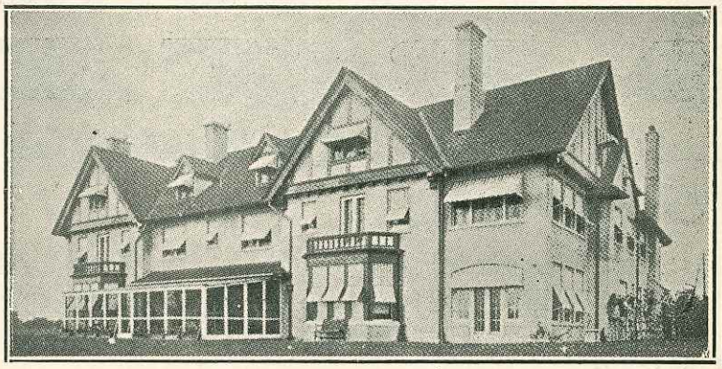

RESIDENCE W. G. HENRY, BLOOMFIELD HILLS

Hammond Bldg., Detroit

COMING MOTOR EVENTS.

The following events are of interest to motor car manufacturers and automobile owners, as well as prospective owners:

Jan. 16-23—Detroit, Mich. Automobile show. Thompson building.

Jan. 18-23—Rochester, N. Y. Automobile show. Exposition Park. Rochester Auto Trades Association. C. A. Simmons, manager.

Jan. 19-23—Baltimore, Md. Automobile show. Fifth Regiment Armory Baltimore Auto Dealers' Association. H. M. Luzius, 12 W. Mt. Royal avenue, secretary.

Jan. 20-23—Lancaster, Pa. Automobile show. Auditorium. Lancaster Auto Trade Association.

Jan. 23-30—Montreal, Can. Automobile show. Allen Line. Liverpool building. T. C. Kirby, manager, 801 Southam building.

Jan. 23-30—Chicago, Ill. Automobile show. Coliseum and First Regiment armory. Automobile Chamber of Commerce. S. A. Miles, manager, 7 East Forty-second street, New York city.

Jan. 25-30—Fall River, Mass. Automobile show.

Jan. 25-30—Buffalo, N. Y. Automobile show. Broadway Auditorium. Buffalo Auto Dealers' Association. John J. Gibson, secretary, 401 Franklin street.

Jan. 27-28—Chicago, Ill. Meeting of National Garage Association.

Jan. 28—New York city. Meeting of Metropolitan section of Society of Automobile Engineers.

Jan 30-Feb. 6—Minneapolis, Minn. Automobile show. Armory. Minneapolis Automobile Trade Association. R. B. Simming, secretary, 707 Andrus building.

Jan. 30-Feb. 6—Columbus, Ohio. Automobile show. Memorial Hall. Columbus Automobile Club and Auto Trade Association.

Feb.—Louisville, Ky. Automobile show. Louisville Auto Dealers' Association. P. S. Longest, secretary, 725 S. Third street.

Feb.—Toledo, Ohio. Automobile show. Toledo Auto Show Co.

Feb.—Portland, Ore. Automobile show. Portland Automobile Trade Association.

Feb.—Grand Forks, N. D. Automobile show. Auditorium. Grand Forks Auto Show Association. L. Stinson, manager.

Feb. 1-7—St. Joseph, Mo. Automobile show. Auditorium. St. Joseph Automobile Show Association. R. R. Calkins, manager, German-American Bank building.

Feb. 2-7—Kalamazoo, Mich. Automobile show. Armory.

Feb. 3-6—St. Joseph, Mo. Automobile show. Auditorium. H. J. Leslie, secretary.

Feb. 8-13—Elmira, N. Y. Automobile show. State armory. Elmira Auto Club. Frank D. Pratt, manager, 210 E. Water street.

Feb. 8-14—Kansas City, Mo. Automobile show. Convention hall. Kansas City Motor Car Dealers' Association. E. E. Peake, secretary, 909 Gloyd building.

Feb. 15-20—Grand Rapids, Mich. Sixth annual automobile show in Klingman Furniture Exposition building. Grand Rapids Herald. C. L. Merriman, auto editor, in charge.

Feb. 15-20—Bridgeport, Conn. Automobile show. State armory. B. B. Sterber, manager, 925 Main street.

Feb. 15-20—Omaha, Neb. Automobile show. Auditorium. Omaha Auto Show Association. C. G. Powell, manager, 2118 Farnum street.

Feb. 22—San Francisco, Cal. Vanderbilt cup race. Panama-Pacific Exposition.

Feb. 23-27—Syracuse, N. Y. Automobile show. State armory. Syracuse Auto Dealers' Association. H. T. Gardner, manager, 100 Prospect place.

Feb. 23-27—Ft. Dodge, Iowa. Automobile show. Armory. Ft. Dodge Auto Dealers' Association. G. W. Tremain, secretary, 1104 Central avenue.

Feb. 27—San Francisco, Cal. Grand prize race. Panama-Pacific Exposition.

March—Watertown, N. Y. Automobile show. Watertown Automobile Association. Arthur E. Sherwood, manager, 4-6 Flower building.

March 6-13—Boston, Mass. Automobile show. Mechanics' building. Boston Auto Dealers' Association. Chester I. Campbell, manager, 5 Park square.

March 8-13—Des Moines, Ia. Automobile show. Coliseum. Des Moines Auto Dealers' Association. C. G. Van Vliet, manager, 409 Observatory building.

March 15—Cedar Rapids, Ia. Automobile show. Auditorium. Cedar Rapids Auto Dealers' Association. Martin Beck, manager, First avenue, west.

April—Calumet, Mich. Automobile show. Coliseum.

April 15-20—Deadwood, S. D. Automobile show. Deadwood Business Club. George H. Kilker, manager.

May 29—Indianapolis, Ind. International 500-mile race. Indianapolis Motor speedway.

June 16—Galesburg, Ill. 200-mile race. Galesburg district fair.

June 25—Sioux City, Ia. 300-mile race. Sioux City Speedway Association.

July 4—Tacoma, Wash. Speedway races. Tacoma Speedway Association.

Aug. 20-21—Elgin, Ill. Elgin road races. Chicago Automobile Club.

Sept. 20-25—San Francisco, Cal. International Engineering Congress.

Following weeks of preparation, officials of the Chamber of Commerce will launch their membership campaign Monday morning. Although it is referred to as "annual" it is the first big campaign since the society was reorganized from the old Business Men's Association, three years ago, and directors hope to boost the membership to as much as it was at that time.

Business Directory for Buyers

This Classified Directory is for the purpose of affording convenient information to intending purchasers on representative lines of supplies used by the manufacturing interests of the state. Purchasing departments will find it of great convenience for ready reference.

Rates and Terms for Representation in This Directory Quoted on Application

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Barthel, Flanders & Barthel

Agents and correspondents in every country granting patents, trade marks, designs or copyright protection.

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BABBITT METAL

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Makers of Mogul Babbitt Metals and Die Castings

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DIAMOND SETTINGS.

PHONE CHERRY 2590-R

Detroit Diamond Setting Co.

Bortz and Carbon Diamonds Set and Reset for All Purposes

At Short Notice

406 Jefferson Avenue East DETROIT, MICH.

EMERY WHEELS.

The Detroit Emery Wheel Co.

The Detroit Grinding Wheel Co., Successors
DETROIT, MICH.
Manufacturers of the Celebrated
Hart Grinding Wheel and Grinding Machinery

Michigan Supreme Court Makes New Auto Road Rules

The supreme court of Michigan recently made a new automobile law for Michigan.

It gave out rules regulating the driving of automobiles in the State to a minuteness that has never been reached before.

Briefly and practically speaking, the first duty of an automobile driver in Michigan is to look out for the safety of those in the street or road. His own safety, broadly speaking is a secondary consideration. The opinion goes much further than any ever emanating from the court in a civil automobile case. It was partly touched upon in a criminal case decided last summer from Ingham county, but the strictest or orders are now imposed upon an automobile driver for the first time.

The case before the court was one in which Frank Winckowski, a nine-year-old boy, was injured in Detroit November 30, 1913, by a "pick up" car. The case never went to the lower court jury. The supreme court reversed this action of the lower court, ordered a new trial and in so doing delivered a general lecture on the operation of automobiles in Michigan.

The new rules as outlined by Judge Steere, who wrote the opinion, originated in a decision of the New York court of appeals. The rights of the automobile driver, as outlined there, are read into Michigan law by the opinion, and are as follows:

"No owner or operator of an automobile is, therefore, exempt from liability for a collision in a public street by simply showing that at the time of the accident he did not run at a speed exceeding the limit allowed by law, or ordinance; he still remains bound to anticipate that he may meet persons at any point in a public street, and he must keep a proper lookout for them and keep his machine under such control as will enable him to avoid a collision with another person, also using proper care and caution. If necessary he must slow up and even stop. No blowing of a horn or whistle without an attempt to slow the speed is sufficient, if the circumstances demand that the speed should be slackened, or the machine stopped and such a course be practicable to him. Every such operator of an automobile has the right to assume that every person whom he meets will also exercise ordinary care and caution according to the circumstances and will not negligently or recklessly expose himself to danger, but rather make an attempt to avoid it."

In the Winckowski case the boy jumped from a moving wagon in front of the automobile. In order to prevent a collision the automobile driver had turned to the wrong side of the road and struck the boy, who was headed for the right-hand curb. It is the switching from the right to the wrong side of the street which puts the auto driver in a bad light with the court. Such a move is practically held to be negligence in itself. In discussing this Justice Steere says:

"Witness Pierson (another automobile driver who was close by) well expressed the mental attitude of those who continue on at a dangerous speed under such circumstances, rather than take to checking their cars to safe control, in his statement: 'I suppose he did as many of us often do. I often run on that side (left side) of the street myself and it is merely a game of chance."

Justice Steere continued:

"If such a game of chance only hazarded the driver who indulged in the game it might be regarded with complacency and even condoned, but such conduct is not in harmony with the rule of law requiring due care for the safety of others, although theoretically expatiated as too often occurs, by subsequent expressions of regret at a coroner's inquest over an involuntary victim of the 'chance.'"

The Wayne county court held that the boy was negligent in jumping from the wagon in mid-street. This, the court says, was a question for the jury and on this point alone the case was reversed and sent back for a new trial.

HOWELL BANKER DIES IN DETROIT.

William McPherson, Jr., member of the board of control of the State Industrial School in Lansing, former state railroad commissioner, and one of the leading citizens of Howell, died Sunday morning, in Grace hospital, in Detroit. He was a brother of Alexander McPherson, chairman of the board of directors of the First and Old Detroit National bank, Detroit. He was 81 years old.

Mr. McPherson was born near Inverness, Scotland, and when two years old was brought to Howell by his parents. His first business venture was in the mercantile trade. Mr. McPherson founded and built up a large concern in Howell. In 1890 he became manager of the private bank of Alexander McPherson & Co., in Howell, succeeding his brother, who left to seek greater fortune in Detroit. He was appointed to the state railroad commission in 1890 by the late Gov. Alger.

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Maple and Oak Flooring.
Veneered Door, Stiles, Rails and Panels also
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ANNUAL MEET OF THE SALT CO. CALLED.

The annual meeting of the stockholders of the Anchor Bay Salt Company will be held at the general office of the company, No. 12 Woodward avenue, Detroit, on Tuesday, Feb. 2, 1915, at 9:30 o'clock a. m.

Business Directory for Buyers (Cont'd)

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Made-to-Order Sheet Metal, Spun and Stamped Goods of Every Description.
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STEEL STAMPS, BOX DIES, EMBOSSING DIES, SEALS, BURNING BRANDS, STENCILS
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DETROIT COUPE TOP CO.
Practical Motor Body Builders.
Designs, Drawings and Estimates Furnished.
Coupe Tops made to order.
High Class Work Guaranteed.
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STATE BANK AT SIX LAKES.

The State Bank of Six Lakes, with William J. Orr, cashier of the Bay Port Bank at Bay Port, as president, has been opened at Six Lakes. The vice-president is Aaron Amon, vice-president of the State Savings Bank of Remus, and B. F. Olumley, cashier. The directors are: William J. Orr, William H. Wallace, president of the Bay Port Bank at Bay Port; Aaron Amon; George Bilbrough, cashier of the State Savings Bank of Remus, and A. W. Orr, cashier of the Blanchard State Bank at Blanchard.

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can be heated much cheaper and be free from dust, soot and rattling windows by the use of the INVISIBLE
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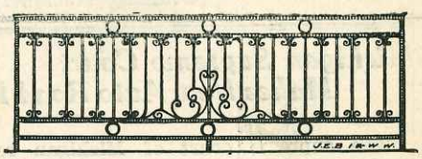

Bank and Office Railings, Elevator Enclosures and Cars, Grilles, Fire Escapes, Iron Shutters, Iron and Wire Fencing, Builders' Iron Work, Park Settees, etc. .. ..

ORNAMENTAL IRON & BRONZE
BUILDERS IRON & WIRE WORK
DETROIT ARCHITECTURAL IRON WORKS CO.
ISABELLA & E. STS. DETROIT, MICH

Telephone Main 538.
F. A. Chapper Iron & Wire Works
STRUCTURAL AND ORNAMENTAL IRON WORK
Builders' Steel Supplies
127-129 BRUSH ST., DETROIT, MICH.

PRESSED-ON TYPE OF TRUCK TIRE.

"In the commercial vehicle field we find for 1915 an ever-increasing demand for the pressed-on type of truck tire," says C. W. Martin, Jr., manager motor truck tire department, the Goodyear Tire & Rubber Co. "There can be no doubt that experience has proved beyond question that pressed-on truck tires, in territories equipped with facilities for their handling, have given maximum satisfaction and mileage.

"To meet this demand Goodyear is campaigning and featuring for 1915, the S. V. tire that has been subjected to a remarkably severe series of experiments and tests during the past year. This is without doubt the best tire for its purpose that Goodyear has ever turned out, and where it has been adopted, users cannot be induced to change. We are preparing to equip many of our Branch cities with facilities for applying and other handling of the S. V. type of tire, and judging from sales results already in hand there is every indication that 1915 is to be a banner year in our truck tire business."

STEEL RIM STATISTICS.

Enough steel to build 24 skyscrapers is put into Firestone rims every year. This is the statement of R. J. Firestone, sales manager of the Firestone Tire & Rubber Co.

To meet the demand last year 12,000 tons of steel were converted into rims. This is 24,000,000 pounds. Contractors say that 1,000,000 pounds of steel is enough for a pretty tall business block.

The company buys much special section steel. Storage of the raw steel alone requires 15,386 square feet of floor space.

A busy force of 400 men and a working floor space of 150,000 square feet are used in the rim plant. The equipment of machinery is also on an unusual scale. There are 16 electric welders. One of them specially constructed to handle stock 14 inches wide.

Some idea of the general demand for rims is gained when it is known that these rims are always carried in stock at more than 1,000 distributing points in this country.

Sixty automobile manufacturers will use the rims exclusively during the coming year. They have all placed their contracts for their supply. So the rim plant will be just as busy as the tire factory in 1915.

MOST ACCURATE MACHINE IN THE WORLD

him to rule diffraction gratings on glass or metal, for use in the most delicate kind of spectroscopic work, in the place of the glass prisms that are commonly used to form the spectrum by splitting up white light into its component colors. These gratings consist of five parallel lines, so close together that they can be separated only by a microscope of the highest power.

Accuracy is measured nowadays by the limit of error. The Rowland gratings are not perfect, because perfection is impossible; but their limit of error is one-millionth of an inch, which makes the engine that is able to draw them the record-holder for accuracy.—Literary Digest.

SOUTH DAKOTA'S MOTOR CARS.

The automobile registration for South Dakota for 1914 was a material increase over that of 1913. The record of the comparative years being:

	1914.	1913.
Auto licenses	20,929	14,452
Dealers' licenses	491	298
Motorcycle licenses	1,733	1,212

BROKEN JOINT PINS.

Oftentimes trouble is experienced on the road with broken universal joint pins on the propeller shaft. Where there is no garage in the vicinity a temporary repair can be made by using a bundle of iron wire or a heavy bolt wedged in the yokes of joint, to pass the power to rear axles.

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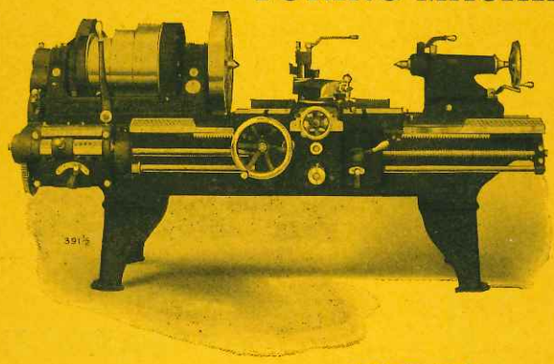
SHEARS, AUTOMOBILE MANUFACTURING MACHINERY



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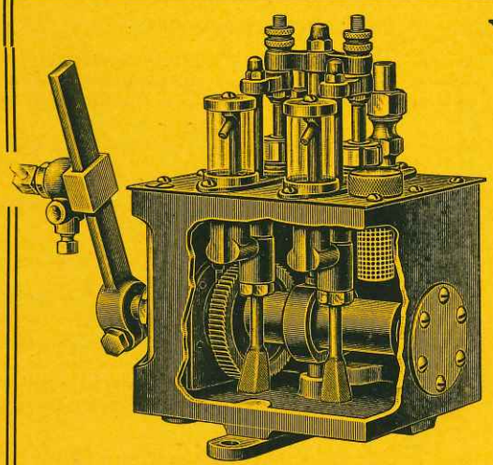

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The only cure for friction is adequate lubrication. But it must be economical also. Too much oil is as injurious as too little and it runs up the "operating expense."

"McCord"
Force Feed
Lubricators

slip in just enough oil between the bearings to make nice, smooth, easy running. They cut down friction to its lowest point. Doing this continuously, with never a stop or delay, they effect about a 25% saving in oil. A "McCord" is yours for all this and a 30-day free test whenever you send for it. But send now—start that 25% oil saving RIGHT AWAY.

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A Truck to fit your business at a price you are willing to pay.

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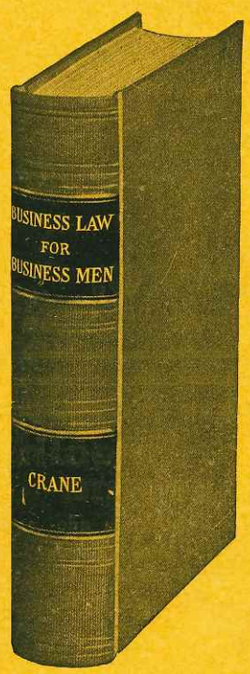
"The trouble with you fellers is you

never read a book on business in all your life, and never would"

is the remark Philip made to Kaidin & Sift in the story, "The Efficient Salamander," which recently appeared in The Saturday Evening Post. This is true of many business men who, if they investigated some books, would thank the publishers for calling their attention to them.



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each with its numerous sub-divisions. It also contains the latest and most improved legal forms ,including Contracts, Powers of Attorney, Wills, Deeds, Leases, Assignments, etc., etc.

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Why did Henry Ford buy a FEDERAL for his farms at Dearborn?
Why is the Studebaker Corporation using FEDERALS?
Why did the Hudson Motor Car Co., acting upon the judgment of Howard E. Coffin and his 47 trained engineers, purchase FEDERALS for their work?
It must be a wonderful truck! Why not find out more about what it can do for YOU?

Federal Motor Truck Co., Detroit, U. S. A.

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Mundus
"The BEER With the Fine Flavor"

Drank by Connoisseurs Everywhere

Drink it at Club and Home BECAUSE { It's light and pure / It's properly aged / It helps assimulate food }

West Side Brewing Co.
Phone West 1053 : : : DETROIT

RUNS PRINTING PRESS WITH BUICK.

Down in Marble Falls, Texas, they publish the Messenger every week to let the natives know all the gossip in town. If the subscribers do not get their papers Thursday afternoon at 3 o'clock sharp the editor is very apt to come to grief.

About 2 o'clock on press day not long ago Editor Faubion was shaking in his boots. Electric power is used to print the Messenger, but on this particular day there was no "juice." Owing to high water in the river the city power plant was shut down.

Editor Faubion had to buy, rent or borrow an engine to run the press, but his efforts were in vain. The clock said 2:10; Faubion raved and tore his hair.

But quick as a flash an idea came to him. Why not press into service his model 25 Buick? This he did, but let Editor Faubion tell how the Buick saved the day:

"We ran the auto into the office, backed it up to the press, jacked up one rear wheel, took the tire off, ran the belt from the press direct to the car wheel, started the engine and began to grind off an edition of the Messenger. In this way we ran off the issue of 1,000 copies in about 40 minutes. Thus you see Buick automobiles can be made useful in more ways than one and save editors from the wrath of angry subscribers."

"ORPHAN" MOTOR CARS EMBARRASS.

R. B. Jackson, general manager and secretary-treasurer of the Hudson Motor Car Company, believes that prospective motor car purchasers should pay more attention to the financial standing of the companies who are back of the cars they think of selecting. To many buyers the beauty of the car, its general appearance, its size and what it will do on the road are the most important points, yet even more important in Mr. Jackson's estimation is the financial standing and the commercial reputation of the company who build the car.

Unfortunate owners of "orphan" cars will testify that Mr. Jackson's judgment is correct. To buy a car, the selling price of which is, say, $3 000, to have the manufacturer go out of business and then to find that the selling value or exchange value of the car has dropped over night, probably to something like 20 per cent of its purchase price, is a grim commentary on Mr. Jackson's statement.

Yet this is what has happened to many buyers of motor cars during the past two or three years. It is of the first importance to know that the maker of the car is financially strong, that he is going to continue in business, that he is possessed of funds sufficient to meet the constantly changing aspects of the motor car business and of the world's business.

HOW DODGE BROS. SAVE THE SQUEAL.

In Chicago packing houses the contention is made that everything of the pig is used with the exception of his squeal. That is the packer's secret of success—the elimination of waste. The larger automobile factories in Detroit have much of the same efficiency system in vogue. For example, one of the representatives of Dodge Brothers was telling an interested group at the show that all the steam used by the steam hammers in the big plant of Dodge Brothers at Detroit is again utilized in generating electric current after it has given most of its energy to raising the hammers.

In the forge shop there are 45 of these steam hammers ranging from 400 to 5,000 pounds in effective weight. The steam comes to them at a pressure of 1,000 pounds to the square inch and after lifting the hammer weights it is exhausted at a pressure of about one pound. But it still has work to do, for that one pound of energy left in it must not go to waste. It goes to the low pressure turbine in the power house, and drives that prime mover at 3,600 revolutions a minute. This turbine is connected to an electric generator which develops 750 kilowats of electricity.

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The largest Automobile Manufacturers in Detroit have adopted NAGLE SOLUBLE OIL in their shops as standard in preference to all Cutting Oils or Cutting Compounds. Ask for a list of our Detroit Customers who recognize Merit, Efficiency and Economy.

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Waterproofing Specialties and Ducks

Shed Water Like a Duck's Back

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Tool Rolls and Bags a Specialty

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Superior in quality and workmanship

Mill Representatives on Canvass, Ducks, Enamel and Waterproof Ducks

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ELECTRIC A CAR OF UTILITY.

"For several years it has been recognized that a good electric car is the most economical type of motor car from the standpoint of operation cost," said W. C. Anderson, president of the Anderson Electric Car Company, builders of the Detroit Electric. "The simplicity of the electric and the fact that it can be driven with safety by every member of the family have also become established facts. The electric pleasure car has proved itself a practical car for motoring needs. It is a car of utility. Statistics prove 98 per cent of all motor car trips do not exceed 60 miles at an average of 20 to 25 miles an hour, and for this 98 per cent of trips the electric is considerably less expensive to run, so the electric car is a wise investment.

"An electric has ample power and hill climbing ability to go anywhere. We have equipped our cars with larger battery and larger motor connected directly to the driving shaft, thus giving from 15 to 20 per cent more power.

"A good modern electric runs with absolute silence. It is safer to drive and easier to handle in congested traffic than any other type. The new Detroit Electric can make 25 miles an hour.

"Best results can be obtained only by the manufacturer who actually builds the parts that go into the car itself. It has been our experience that large investments in machinery and factory equipment has proven most satisfactory, for it has enabled us to so build Detroit Electric cars that we have attained a volume in sales of one-third of all the standard electric pleasure cars manufactured."

SURPRISE IN NEW SAXON SIX.

Said a prominent automobile dealer at the New York motor show: "The only thing that surprised me more than anything else that I saw was the Saxon Six. Not only is it remarkable that a six-cylinder car can be built and sold at a price of $785, but just as unusual is the fact that this same car has so much room and is of generous dimensions throughout.

"Of course, like so many others, I knew before seeing this car that it had 112-inch wheel base. A wheel base of that length for any car at this price is uncommon. However, I had not expected to find in the Saxon Six such liberal dimensions from the standpoint of roominess and mechanical specifications.

"This new Six does not suffer in any detail by comparison with other cars selling at $1,200 or more. Not only is it a full five-passenger car, generous in size all around, but it is as modern a car as any on the market."

OWOSSO MAN HAS MOTOR SLED.

Residents of Owosso were surprised by the appearance on their streets recently of an odd vehicle. The contraption might be called a motorsled. Its driver was Robert Wilcox, a local mechanic. Fred Lepard, a motorcycle enthusiast, was a passenger.

The sled was composed of a pair of bobs on which part of a motorcycle had been placed. The front part rested on the bobs, and the rear wheel of the cycle, which furnished the motor power, ran on the ground. At the rear was another bob on which was placed two automobile seats. A steering gear had been arranged so that the wheel was in front of the driver and to his side were the clutches and brakes.

The sled runs on the snow and ice fully as fast as a motorcycle will run along the country road.

GRAND RAPIDS LANDS ROAD MEET.

It is now definitely decided that the annual meeting of the Michigan Good Roads Association is to be held in Grand Rapids the second week in March. Every trustee, in accord with the sentiments of President Phil T. Colgrove, is in favor of holding the convention there and Mr. Colgrove says that the convention will be the largest and most far-reaching in importance of any good roads meeting ever held in the state. He also declares that with the plans mapped out by the local organizations and backed with the support of the business men of the city, there will be not less than 5,000 good roads advocates from all over the state.

There are 12,000 members of the association in the state and of practical road men there are 860 township highway commissioners, besides the county commissioners in each county.

MUSKEGON GETS LEATHER PLANT.

As the result of a contract just signed by the board of directors of the Muskegon Chamber of Commerce, Muskegon is assured a new industry.

The C. C. Fleckenstein Company, Inc., a $50,000 leather industry now located at Chicago, has been secured and will purchase the former Brown-Morse plant, which has stood vacant for some time. The factory will begin removing to Muskegon about Feb. 1 and expects to employ 40 skilled hands by April 1.

The company manufactures leather products, principally shoe soles, blocks and slabs. In coming to Muskegon it will have to move over $80,000 worth of leather alone, which indicates its standing and stability.

The personnel of the company is C. C. Fleckenstein, President; his sons, Nobart and Ray Fleckenstein, and his brother, Lee Fleckenenstein. Mr. Fleckenstein has been in the leather business for the past 33 years.

GLOVE FACTORY BUSY.

Business depression has not in any way interfered with the business of the Iverson Glove Company of Lake City.

During the past year the glove manufacturing concern has more than doubled the output of the preceding year, has branched out in several directions, and has made a far larger profit than ever before. At the present time the plant is turning out 100 pairs of high-grade gloves every day, the majority of them being made by hand. Exactly two dozen varieties of gloves are being made at the present time by the Iverson Company.

W. J. "Senator" Morgan, the veteran advertising man who joined the forces of the Ford Motor Company at Newark to look after publicity and some sales, has been given charge of the same work at the New York branch, and with both places on his hands is now a busy man.

Trio Manufacturing Company
MACHINE AND METAL WORK
BRASS, BRONZE AND ALUMINUM CASTINGS
MADE IN OUR OWN FOUNDRY
HIGH GRADE AUTOMOBILE PARTS A SPECIALTY.
Clutches, Brake Bands, Fans, Control Sets, Tanks, Pumps, also Ignition and Starting Electrical Assemblies, etc., etc.
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This top can be raised and lowered by one person. Built to order for any make of car. Seat covers. Storm curtains.
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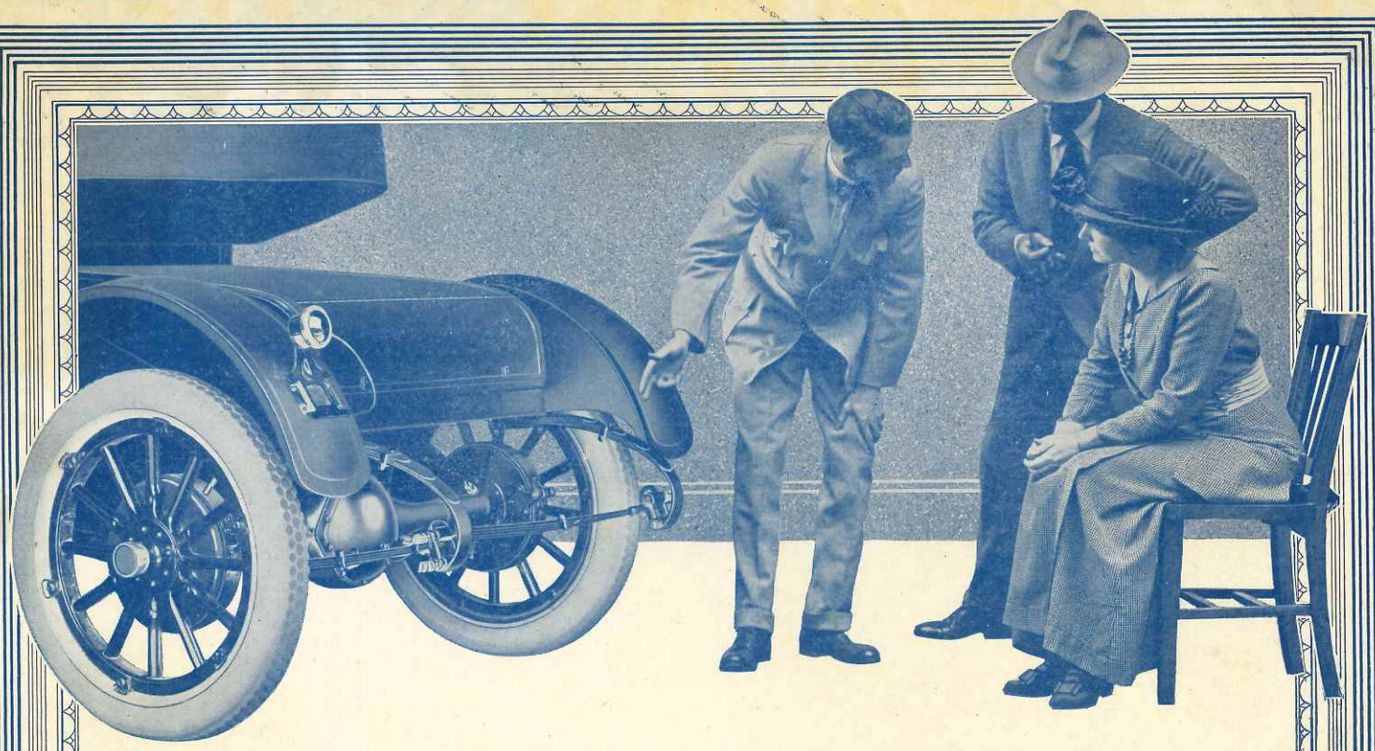

Can the car-builder make as good an axle for his own car as Timken?

Salesmen for Timken-equipped motor cars never have to defend their Timken-Detroit Axles.

On the contrary they aggressively use the Timken Axle as a leading sales argument for the purchase of the car.

Because they know there is no better axle made.

Because each knows that the particular type and size of Timken Axle under his car was designed and engineered into that model of that car by the combined efforts and with the combined knowledge born of the combined experience of able engineers, metallurgists, chemists, production men and salesmen of both the car-building organization and the Timken-Detroit organization.

Because he knows that Timken men are motor-car men as well as axle men and have sat in many a conference with the greatest engineers of the car-building industry—working out with them the problem of designing the right axle for a particular car to rightly correlate and balance with all the other parts of the car.

He knows that no one single car-builder has all this specialized knowledge, ability and experience in the co-designing of axles with the other fundamental component parts.

He knows that with its vast output the Timken-Detroit Axle Co. can afford to have—cannot afford to be without—the most efficient machinery (much of it special), the most efficient tools, jigs, gauges—and methods. That—quality considered—Timken Axles must cost the car-builder less than if made under his own roof.

Stop to think—this *must* be so. *No business can long exist that does not truly serve the men who use the goods it produces.*

Car-builders serve the public by supplying the means for rapid, pleasurable or profitable travel.

The Timken-Detroit Axle Company serves the public through a number of car-builders by enabling those builders to furnish their cars to the public on better axles, costing less than if made by themselves, engineered into more perfect relations with the other essential parts of the car.

Many prominent car-builders have found, year after year, that it helps them serve the public to make the Timken Organization a part of their own organizations—to make the great Timken plant, in effect, their axle department.

Those car-builders are listed in a booklet, "The Companies Timken Keeps," which tells where, in each model of their cars, Timken Axles and Bearings are located. This, and the Timken Primers, "On Axles" and "On Bearings," will be mailed free on post-card request to Dep't T-9 either Timken Company. Your request will bring only the booklets—no letters, no salesmen.

THE TIMKEN-DETROIT AXLE CO.
Detroit, Mich.
THE TIMKEN ROLLER BEARING CO.
Canton, Ohio.

TIMKEN
AXLES & BEARINGS

See
Dodge Brothers
Motor Car

It Speaks for Itself

THOMAS J. DOYLE
264 Jefferson Avenue East
DETROIT